

THE POLAR TIMES



July 2009

President's Letter

The 32nd Antarctic Treaty Meeting held in Baltimore in April, in the 50th anniversary year of its signature in Washington in 1959, was significant in several aspects. The Secretary of State, Hillary Rodham Clinton addressed the delegates at the opening of the meeting, which coincided with an extraordinary joint meeting with the Antarctic Treaty Consultative Parties and the Arctic Council. Clinton spoke to the importance of Antarctica in investigations of climate change and the effects of "global warming" being observed there, and specifically referred to the "catastrophic consequences if we don't take action soon." She addressed the problems associated with tourism in Antarctica and the need for its regulation. Both of these points represented a change of the US position from that at previous Antarctic Treaty Consultative Meeting, essentially brought about by significant changes over the decades (i.e the dramatic change caused by global warming manifest by the West Antarctic Ice Sheet, and the equally dramatic increase in Antarctic Tourism and its incident sinking and grounding of ships).

To my knowledge, this is the first time a US Sec'

retary of State has ever spoken to an ATCM. Clinton's address had a positive influence on the meeting, its smooth operation, and noticeable absence of discord compared with previous meetings.

The U.S. introduced two proposals for binding limitations on the number of passengers carried on tour vessels (500) and to restrict the number of passengers on shore at any one time (100). These were adopted by consensus after negotiation, and will become mandatory after ratification by the 28 Antarctic Treaty Consultative Members. I personally think that these numbers are too high, but they certainly are a step in the right direction. The Meeting also agreed to support efforts at the International Maritime Organization (IMO) promoting safety of Antarctic shipping, including stronger lifeboat protection. It is sheer good fortune that there was no loss of life when the tour vessel, Explorer, sank off the northern Antarctic Peninsula in November, 2007. The government of Liberia, under whose flag the Explorer operated, provided a report on its sinking to the ATCM in April.

The question of lifeboats is a bit tricky. The US scientific RV Nathaniel Palmer carries "sealed" lifeboats and the scientists and crew are provided with difficult-to-get-into immersion suits; they practice

putting these cumbersome suits on, and getting into the boats. This type of lifeboat is probably the safest available. However, I cannot imagine 500 tourists of varying age and physical abilities quickly clambering into such a craft. Probably some type of "open" lifeboat, with a water-tight cover would be the best for many tourists to board quickly and launch. But, what is an adequate watertight cover? Probably the IMO is the most suitable body to define the solution to the issue of lifeboat safety in Antarctica.

The Antarctic Treaty-Arctic Council Joint Meeting issued a Ministerial Declaration on the International Polar Year (which has just successfully concluded) and Polar Science. This declaration "supported the analysis and use of scientific data and information collected from the polar regions as a result of IPY to contribute to future assessments by the International Panel on Climate Change, as well as other efforts to address climate change, and future Arctic Council Assessments."

John C. Behrendt
APS President

About Our Front Cover

Looking like an alien spacecraft about to return to deep space following an Antarctic reconnaissance, Belgium's new Princess Elisabeth Station, inaugurated on 15 February 2009, is the first 'zero emission' station in Antarctica, the first to operate without releasing any greenhouse gases. (Note wind turbines to the right of station.) See story on page 4. — Photo Copyright © International Polar Foundation / René Robert



REINHART PUL/NATIONAL SCIENCE FOUNDATION

Personnel at Amundsen-Scott South Pole Station move the U.S. flag located at the Geographic Pole to its new location. Because the ice moves about 10m a year, the marker designating the exact location of the Pole is relocated every New Year's Day. The Christmas tree is made of metal machine parts. Photo taken 1 January 2009.

American Polar Society

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are \$15 a year (\$17, foreign) and entitle members to receive *The Polar Times* twice a year. The American Polar Society is classified as a tax exempt organization under Sec 501(C)3 of the IRS Code. For more information about the American Polar Society, contact Kevin L. Bjella, APS Secretary, at 1.802.295.6881 or send email to kevin.bjella@erdc.usace.army.mil.

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The American Polar Society Celebrates 75th Anniversary

With this issue of *The Polar Times* we recognize and celebrate the 75th anniversary of the creation of the American Polar Society, founded in November 1934 by August Howard. Howard's lifelong fascination with polar matters and the early polar explorers, especially on the Antarctic continent, and his desire to share his avocation with others, became the driving force that has joined together several generations of men and women as members of the American Polar Society.

His vision and the friendships he attained with the icons of polar exploration, along with his professional career with the National Council of the Boy Scouts of America, are detailed in the website history account by Raimund E. Goerler and Lynn Lay, entitled "The American Polar Society—Past, Present and Future." (Complete history is available at http://www.ampolarsociety.org/aps_history_1.html.)

In the 1930s newspapers were the undisputed "kings of the media," and Howard cultivated relations with the leading eastern press, *The New York Times*, United Press

International, Associated Press, The North American Newspaper Alliance and even the redoubtable *London Times*. His purpose was to establish a central point of information and



Rose and August Howard, circa 1934. (PHOTO: THE OHIO STATE UNIVERSITY ARCHIVES, RECORDS OF THE AMERICAN POLAR SOCIETY, ACCESSION #19944, 2-13-1)

knowledge about the polar regions, for the education of children and to engage the interest of the general public, armchair explorers and other such enthusiasts. The vehicle he en-

visioned for gathering and disseminating this polar information was *The Polar Times*, the first issue of which appeared in July 1935. (In July 2010, The American Polar Society will publish a jubilee 75th anniversary edition of *The Polar Times*, which could well become a collectible in its own right!)

As most of you may know, despite his lifetime interest in Antarctica, August Howard never set foot on the continent, even though two places owe their name to him: Cape Howard on the Weddell Sea, named in his honor, and a glacier that bears the name of *The Polar Times*.

On this upcoming 75th anniversary of The American Polar Society and its voice, *The Polar Times*, it seems appropriate to ask current members to pause for a moment to think about the enduring contribution this organization has made to informing the citizens of this country and others throughout the world of the importance of the polar regions.

A moment of such reflection can only lead to your commitment to ensuring that the vision of August Howard, and those who followed, carries forward for another 75 years. □

Dear Society Member: Thank You

Last month you received a letter from the Society's President, John Behrendt, inviting you to make a special contribution to the Polar Society. The response has been remarkable, with over \$7,500 contributed to date. Heartfelt thanks to those of you who responded so generously.

However, we still have a need to fill the gap between what we receive in membership dues and what we spend to publish *The Polar Times*. As I have mentioned in previous letters, our three editors all contribute to *The Polar Times* without compensation, as do our Membership Chair and Treasurer. The only costs for the magazine are for our design consultant, our printer, and postage.

For those who have not made a

contribution, I encourage you to do so today. The Polar Society is a 501(c)(3) organization, and gifts to the Society are fully tax deductible. You will receive confirmation of your gift to the Society for tax purposes. You may give at six levels:

- Arctic Fox\$25.00
- Adelie Penguin\$50.00
- Emperor Penguin.....\$75.00
- Polar Bear\$100.00
- Minke Whale\$250.00
- Humpback Whale\$500.00

Please send your tax deductible donation to the Society today. Checks should be mailed to:

American Polar Society, c/o Treasurer, American Polar Society, 6001 Hillcrest Road, Medford, OR 97504

The main source of income for the

Society is membership dues. If you want to inform your friends, relatives or colleagues about the planet's polar regions, please consider giving a gift subscription.

Anyone interested in joining the Society, please refer to the Membership Chair's letter on the inside back cover.

Please, respond as best you can to our president's appeal for a donation to The American Polar Society, to restore our financial stability and ensure that our presence in all matters polar established over the past 75 years continues undiminished.

Dave Baker
APS Treasurer

Belgium Returns to Antarctica

New Princess Elisabeth is First 'Zero Emission' Station in Antarctica



PHOTO COURTESY © INTERNATIONAL POLAR FOUNDATION / RENÉ ROBERT

CASTING A LONG SHADOW: The \$26 million station is located at Utsteinen ("the Outer Stone") Nunatak, 190 km from the Dronning Maud Land coast in East Antarctica. Winds at Utsteinen reach up to 300 km/hour, so the station has an aerodynamic shape and nine turbines help to generate the station's electricity.

The Princess Elisabeth Station's inauguration on 15 February 2009 after two years of construction has

placed Belgium back on the Antarctic map with a new and unique research station—the first to operate without releasing any greenhouse gases.

Belgium is one of the original 12 signatories of the Antarctic Treaty, but has not had a scientific research station in the Antarctic since its King Baudouin station, built for the IGY in 1958, was decommissioned in 1967.

Designed with an emphasis on sustainable technologies and minimization of its environmental impact, the new station relies

solely on the renewable energy produced by nine 9-metre-high wind turbines and 380m² of photovoltaic panels. An additional 18m² of thermal solar panels on the station's roof generate heat for the kitchen, bathroom and water treatment unit and 6m² located on top of the garages provide heat to melt snow for drinking water. Two diesel generators supply power for use in emergencies.

The station's skin, insulation, shape, orientation and window disposition allow a comfortable ambient temperature to be maintained inside the building with little energy input. Sophisticated ventilation and air circulation systems are an integral part of temperature management. Each of the 160 C-shaped side panels composing the station walls is made up of 8 consecutive layers, totalling 60cm in thickness. The insulation layer itself, lightweight expanded polystyrene, is 40cm thick.

With a commission from the Belgian



PHOTO COURTESY © INTERNATIONAL POLAR FOUNDATION / RENÉ ROBERT

HAPPY DAY: At the inauguration, Sabine Laruelle, Belgian Minister for Science Policy and Pieter De Crem, Belgian Defence Minister, joined Alain Hubert, President of the International Polar Foundation and director of the station project, at right, on the station steps.

government, Princess Elisabeth station was designed, built and financed, with the help of public and private sponsors, by the International Polar Foundation (IPF).

Named after the seven-year-old granddaughter of King Albert II of Belgium, the station “demonstrates that with a positive attitude and the technological means we have at hand today, it is possible to confront tomorrow’s climate challenge,” says Alain Hubert, President of the IPF and director of the station project.

Princess Elisabeth was conceived to operate year-round but will operate as a summer-only (November to February) facility for the next several years. With an expected lifespan of at least 25 years, the 495 m² station will accommodate 12 people in winter and up to 48 people in summer (some of them living in the 1000 m² technical areas of the station).

The station cost \$26 million to build and was two-thirds financed by the private sector. Once it is operational, the station is run by a Polar Secretariat, a public/private partnership between the Belgian Federal State and the IPF.

Residents will be among the first in Antarctica to recycle their used water. Inspired by technology developed for the space sector, two bioreactors and two filtration units will allow the station to treat 100% of its water and reuse 75% of it. Theoretically speaking, water can be recycled endlessly. At Princess Elisabeth, however, the water will be recycled a



LOOKING AHEAD: Named after the 7-year-old granddaughter of King Albert II, the station was conceived to operate year-round but will operate as a summer-only facility for the next several years. It can accommodate up to 48 people.

maximum of five times, depending on the number of people occupying the station. After treatment, part of the recycled water will be evacuated through a crevasse underneath the building.

The electrical systems of the station were designed to be as energy-efficient as possible given the requirements of operating an Antarctic research station in the harsh polar environment. All station systems are integrated and piloted by an intelligent central unit. This configuration ensures that working and living conditions

inside the station are optimised with minimal resource consumption. Energy production and consumption are monitored and controlled using a smart grid system. This centralised control of interdependent systems also allows for remote monitoring during the winter.

The station is located 190 km from the coast at 71°57'S, 23°20' E on the North Ridge of Utsteinen (“the Outer Stone”) Nunatak in Dronning Maud Land, East Antarctica. Winds at Utsteinen reach up to 300 km/hour, so the station has an aerodynamic shape and its anchoring extends up to 12 m deep into the underlying granite.

Like several other inland Antarctic stations, Princess Elisabeth Station is raised above the surface. Four-meter-tall stilts allow the wind to circulate under the station and prevent snow accumulation. Unlike other stations, Princess Elisabeth does not need to be raised year after year; the aerodynamics of the station were designed to prevent snow accumulation.

Plans for research include glaciology, microbiology, meteorology, astronomy, geomagnetism, geophysics, gravimetric science and geology. Studies will be undertaken on the Antarctic plateau, the nearby Sør Rondane mountain range and the coastal ice-shelves.

The station’s website is <www.antarcticstation.org> □



KEEPING THE SKIES CLEAR: Princess Elisabeth’s 380m² of photovoltaic panels create electricity for the station while eliminating greenhouse gas emissions.

PHOTO COPYRIGHT © INTERNATIONAL POLAR FOUNDATION / RENÉ ROBERT

NOTE: Text by Jeff Rubin based on documentation provided by Lise Johnson, International Polar Foundation.

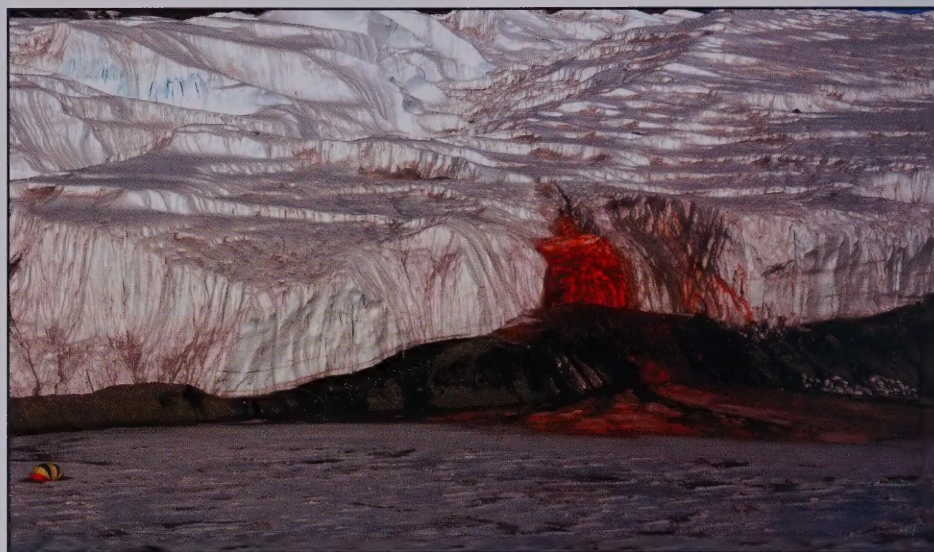
Bacteria Thrive Behind Blood Falls

National Science Foundation press release, 16 April 2009—An unmapped reservoir of briny liquid chemically similar to sea water, but buried under an inland Antarctic glacier, appears to support unusual microbial life in a place where cold, darkness and lack of oxygen would previously have led scientists to believe nothing could survive, according to research newly published in the April 17 edition of the journal *Science*.

After sampling and analyzing the outflow from below the Taylor Glacier in the Dry Valleys, researchers believe that, lacking enough light to make food through photosynthesis, the microbes have adapted over the past 1.5 million years to manipulate sulfur and iron compounds to survive.

The microbes also are remarkably similar in nature to species found in marine environments, leading to the conclusion that the populations under the glacier are the remnants of a larger population of microbes that once occupied a fjord or sea that received sunlight. Many of these marine lineages likely declined, while others adapted to the changing conditions when the Taylor Glacier advanced, sealing off the system under a thick ice cap.

The research answers some questions and raises others about the persistence of life in extreme environments such as under glaciers, or even in liquid lakes trapped kilometers under the Antarctic ice sheet, environments that



Blood Falls seeps from the end of the Taylor Glacier into Lake Bonney. The tent at left provides a sense of scale. Scientists believe a buried saltwater reservoir is partly responsible for the discoloration, which is a form of reduced iron.

until recently scientists would not have believed could support living creatures.

... the earliest explorers noted the massive stain at the snout of the glacier ...

"Among the big questions here are 'how does an ecosystem function below glaciers?', 'How are they able to per-

sist below hundreds of meters of ice and live in permanently cold and dark conditions for extended periods of time, in the case of Blood Falls, over millions of years?," said Jill Mikucki, the lead author on the paper, a researcher at Dartmouth College and a Visiting Fellow at the Dickey Center for International

Understanding and its Institute of Arctic Studies.

Mikucki and her colleagues based their analysis on samples taken at the ominously, but aptly named Blood Falls, a water-fall-like feature at the edge of the glacier that flows irregularly, but often has a strikingly bright red appearance in stark contrast to the icy background.

Even the earliest explorers noted the massive stain at the snout of the glacier and speculated as to what may have caused it. "The original explorers," Mikucki said, "thought that red alga was responsible for the bright color."

In the paper, however, Mikucki and her colleagues argue that the creatures that survive under the Taylor Glacier are both far more exotic and far more adaptable than the early explorers thought.

Because the outflow from the glacier follows no clear pattern, it took a number of years to obtain the samples needed to conduct an analysis. Finally she obtained a sample of an extremely salty and clear liquid for analysis.

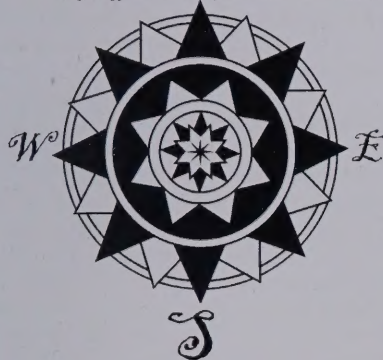
"When I started running the chemical analysis on it, there was no oxygen," she said. "That was when this got really interesting, it was a real 'eureka' moment." □



The research answers some questions and raises others about the persistence of life in extreme environments.

Due South

by Jeff Rubi *N*, Antarctic Editor



Although the year is only half over, 2009 will long be remembered as a very important year for Antarctic history (and historians), for one reason: Bernard Quaritch Ltd. of London published Robert Keith Headland's masterwork, *A Chronology of Antarctic Exploration*.

Subtitled *A synopsis of events and activities from the earliest times until the International Polar Years, 2007-09*, this magnificent 722-page book (weighing 2.2 kg!) lists voyages and expeditions to the far southern parts of the Earth—in particular to Antarctica, but also to the peri-Antarctic islands—by explorers, sealers, whalers, scientists and tourists. The record begins in 700 BC and continues to the present, with the final entry, dated 2009, being the citation for this very book.

In the interests of full disclosure I must reveal that Bob is a friend and that I made a few extremely modest contributions to his book. Nevertheless I can say unequivocally that this volume is so complete and so detailed that it will remain for decades the vital reference for anyone interested in the history of the White Continent.

It costs £110, but as John Splettstoesser, past president of the American Polar Society, says: "Its long-term value is forever."

"The Chronology," as it is simply known, is the result of 25 years work at the Scott Polar Research Institute (SPRI) by Headland, the former archivist. Like all works of such importance, it builds on earlier efforts, namely those of Dr. Brian B. Roberts, who compiled a chronological list of Antarctic expeditions in 1945 for the Foreign Office, London, and expanded it as a SPRI Occasional Paper in 1958.

Roberts' work is the acorn which Headland has patiently and persistently grown into a mighty oak. The 1958 publication contained just 664 entries, while Headland's new work

contains 4,865. This further represents an increase of more than 1,500 entries over his prior publication, *Chronological List of Antarctic Expeditions* (Cambridge University Press, 1989).

The majority of these entries are for expeditions or voyages and give dates, nationalities, leaders (or captains, etc), vessels, places visited, a concise description, and, where appropriate, a reference. For other events, a date, details of persons, countries, and inventions, and a brief description are provided.

Simply put, the amount of data in this book is amazing; the bibliography references 278 works, while the index contains some 50,000 entries!

With characteristic thoroughness, Headland summarizes the changes to this new work in his introduction: "some additional minor voyages of discovery, several hundred more sealing voyages, many more complete names, vessel names for the whaling industry, some corrections to dates and notes, better indexing of subjects, revision of the histograms and bibliography, and similar improvements in completeness and correctness."

Having spent a few hours with Bob (and for Bob) in New England seaport archives and libraries hunting down minutiae of voyages, only rarely finding something new for the Chronology, I have some inkling of the research required to find just those "several hundred more sealing voyages." It is a Herculean task few people would have attempted, and at which far fewer still could have succeeded.

The bibliographical equivalent to Headland's *Chronology* is Michael H. Rosove's *Antarctic Bibliography* published in 2001. Although I described it in these pages as "the *ne plus ultra* of Antarctic bibliography" (Spring-Summer 2003, p27), Rosove has pushed further with the publication of his *Additions and Corrections Supplement to the Rosove Antarctic Bibliography* (Adélie Books, 2008, 49 pp, \$65) which contains many emendations to the original work.

Two items are of general interest. First is a

Magnum opus antarcticus

new entry for what is very possibly the rarest Antarctic book, Cyrene M. Clarke's *Glances at Life upon the Sea; or, Journal of a Voyage to the Antarctic Ocean* published in 1854 in Middletown, Conn. by Charles H. Pelton. (Interestingly, until about five years ago, the local pharmacy in Middletown was Pelton's Drug Store.)

Clarke's book describes a year-long voyage on which he was the expedition surgeon in the brig *Parana* of Sag Harbor, Long Island in the years 1853 and '54 to the South Shetlands to hunt sea elephants; a sealing crew built a hut on Elephant Island and spent the summer. Only six copies of the 84-page book are known, four belonging to institutions. A copy sold in 2004 for \$9,500.

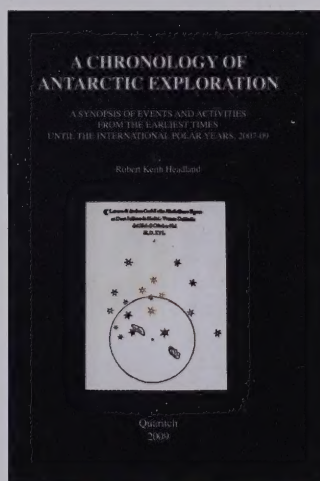
The second is the updated entry for *Aurora Australis*, the "first book ever written, printed, illustrated and bound in the Antarctic," produced by Ernest

Shackleton's Nimrod Expedition of 1908–09.

Until now, the exact number of copies of this fascinating book has not been known. But Rosove publishes the text of a letter (pointed out to him by Robert Stephenson) tipped into the front of a copy of *Aurora* given by Shackleton to the financier Pierpont Morgan and now in the collection of the Morgan Library & Museum in New York.

On the letterhead of the Marlborough Club, Pall Mall, on 25 July 1911, Shackleton wrote to thank Morgan for his "generous help to the scientific results of my Expedition. I much appreciate this and as a slight remembrance of your kindness would ask you to accept the book I send you." Then he added, "There are only 80 copies in existence that being the number printed and only 30 have been distributed."

Rosove notes that 61 copies of *Aurora* have been traced to date, though some of those reports may be duplicative. In recent years, examples have sold at auction for more than £40,000, so readers may wish to check their attics for one of the 20-odd copies that appear to remain unaccounted for. □



The new vital reference.

Antarctic Notes

How Antarctica Got Its Ice

LiveScience.com, 3 June 2009, by Andrea Thompson—Antarctica's thick ice sheets formed tens of millions of years ago against an Alpine-style backbone of mountains during a period of significant climate change, a new study finds. Scientists have known for some time that the Antarctic Ice Sheet formed around 14 million years ago, "but we didn't know how it formed," said study team member Martin Siegert of the University of Edinburgh. That changed with a detailed radar survey conducted in 2004-05 and 2007-08 by Chinese glaciologists over an 30 km² area. The study, reported in the June 4 *Nature*, showed the Gamburtsev mountains in greater detail: a landscape carved out by small glaciers, much like the European Alps. The climate required to allow these glaciers to form and flow started around 34 million years ago. Small changes in Earth's orbit likely drove the glaciers to advance and recede. The glaciers carved out valleys that had already been worn by river flow, changing the topography. Once the expansive ice sheets that now cover the continent began to form, they preserved these landforms in frigid perpetuity. □

Scientists Map Penguins from Space

British Antarctic Survey press release, 1 June 2009—Penguin guano stains, visible from space, have helped British scientists locate emperor penguin breeding colonies. In a new study, published in *Global Ecology and Biogeography*, BAS scientists used satellite images to survey the sea-ice around 90% of Antarctica's coast. Reddish brown patches of guano on the ice, visible in satellite images, provide a reliable indication of the colonies' location. The survey identified a total of 38; ten were new. Of the previously-known colonies, six had re-located and six were not found. □

Study Halves Prediction of Rising Seas

New York Times, 14 May 2009, by Andrew C. Revkin—A new analysis halves longstanding projections of how much sea levels could rise if Antarctica's massive western ice sheets fully disintegrated as a result of global warming. Sea levels would probably rise about 10 feet rather than 20 feet, according to the analysis, published in the May 15 *Science*. The scientists also predicted that seas would rise unevenly, with an additional 1.5-foot increase in levels along North America's east and west coasts, because the shift in a huge mass of ice away from the South Pole would subtly change the strength of gravity locally and the rotation of the Earth. □

Penguin Kidnaps Mortal Enemy

BBC News, 13 May 2009, by Matt Walker—An adult king penguin on sub-Antarctic Marion Island kidnapped a skua chick, then attempted to raise it. As reported in *Polar Biology*, the penguin vigorously defended the chick and tried to brood it upon its feet. Chris Oosthuizen and Nico de Bruyn of the Mammal Research Institute at the University of Pretoria, South Africa, spotted the king penguin while en route to Goodhope Bay on Marion Island. Says Oosthuizen: "Closer inspection revealed it was actually brooding a skua chick." Mature skuas eat penguin chicks

and, occasionally, adults. The researchers saw the chick's real parents, two skuas, attempting to win back their offspring. The tug of love only ended when a human observer returned the chick to its parents. □

Fungi Feasting on Exploration Relics

Smithsonian, May 2009, by Emily Stone—Robert Blanchette may have discovered three new species of fungi where no one believed they existed—Antarctica. They're feasting on the wooden huts built a century ago by explorers Shackleton and Scott. When conservationists noticed signs of decay in the huts—rotting planks and wooden crates covered with black speckles—they consulted Blanchette, a plant pathologist at the University of Minnesota who is a leading specialist in the study of how fungi affect archaeological artifacts. It appears that the huts are being attacked, in part, by native Antarctic species. Because fungi need moisture, the researchers recommended clearing out a century's worth of accumulated ice under Shackleton's hut and removing 100 tons of snow and ice that accumulate annually behind Scott's hut at Cape Evans. □

Japan's Whale Catch Falls Short

Reuters, TOKYO, 13 April 2009—Japan's whaling catch in its latest Antarctic hunt that began in November fell far short of its target after disruptions by anti-whaling activists, the Fisheries Agency said on Monday. Japan killed 679 minke whales despite plans to catch around 850. It caught just one fin whale compared with a target of 50. Some ships in its six-ship fleet have returned home after clashes with the hardline group Sea Shepherd Conservation Society. □

Kiwi Hut Burns Down

[Wellington] Dominion Post, 25 May 2009, by Rebecca Palmer—A hut that sheltered Sir Edmund Hillary on his last night in Antarctica has been destroyed by fire. The A-frame hut on the Ross Ice Shelf near Scott Base burnt down on Saturday night. Antarctica New Zealand chief executive Lou Sanson said the fire started during a routine changeover of the diesel fuel tanks used to heat the timber and bitumen hut. The hut had been moved onto the Ross Ice Shelf in 1971 from the McMurdo Station ice wharf, after the building was discarded by the US Antarctic programme. "The Kiwis of Scott Base quickly made it their own," Sanson said. "The A-frame represented something uniquely Kiwi in Antarctica." It earned the nickname "love shack" after a couple were trapped there during a storm in 2004. They were rescued by a team from Scott Base 16 hours later. It was the "favourite haunt" of the late Hillary, who asked to spend his last night in Antarctica there after the official Scott Base 50th birthday celebrations in 2007. Then 87, Sir Ed shared Antarctic tales at the hut with nine others, including Mr Sanson. He had wanted to spend the night with "a few friends and a bottle of Scotch," much like his first night there 50 years earlier. □

Storms Dump Record Snow at McMurdo

Antarctic Sun, 8 May 2009, by Peter Rejcek—A trio of April storms blanketed McMurdo station, breaking a 41-year record for snowfall and coming close to a world record wind speed. The first storm began April 11 and dumped 17.5 inches over four days, including 14 inches in 24 hours, a new record.

The previous record was 10 inches in 24 hours in April 1968. Less than a week later, another storm dropped nearly 35 inches on McMurdo in three days, with 20 inches in 24 hours, breaking the record again. Wind gusts at Black Island reached 211 mph; the all-time surface wind-speed record is 231 mph, recorded in April 1934 at N.H.'s Mount Washington Observatory. □

Iron Fertilization Test Fails

Times of India, NEW DELHI, 24 Mar 2009, by Amit Bhattacharya—The Indo-German iron fertilization experiment LOHAFEX (Loha is Hindi for iron, FEX stands for Fertilization EXperiment) that triggered a storm of protests when it set sail in January this year to test a controversial method of fighting global warming by getting a huge amount of CO₂ to sink deep into the ocean, has returned with disappointing results. The amount of CO₂ eliminated from the atmosphere was far less than expected. This has led the scientists to infer that the Southern Ocean may not be as good a site as previously thought for ocean iron fertilization, a method of seeding the ocean with iron to prompt the blooming of phytoplankton, which take up CO₂ from the air and quickly die off, sinking deep into the ocean with the carbon. The LOHAFEX team found that though the algae mass doubled in size after four tonnes of dissolved iron was dropped in a 300 km² patch of ocean, most of it was quickly eaten by zooplankton, resulting in most of the CO₂ trapped by the algae to be recycled into the air. The team spent 2-1/2 months in the Southern Ocean, returning to India on March 20. □

Wind Shifts May Stir CO2 From Antarctic Depths

[Columbia University] Earth Institute News, 27 March 2009—Natural releases of CO₂ from the Southern Ocean due to shifting wind patterns could have amplified global warming at the end of the last ice age—and could be repeated as man-made warming proceeds, a new paper in *Science* suggests. Scientists at Columbia University's Lamont-Doherty Earth Observatory now offer one explanation for the mysterious rise in CO₂: a change in Earth's orbit triggered a southward displacement in westerly winds, which caused heavy mixing in the Southern Ocean, pumping dissolved carbon dioxide from the water into the air. In the last 40 years, the winds have shifted south much as they did 17,000 years ago. □

Phytoplankton Changing Along Peninsula

Rutgers University news release, 20 March 2009—As the cold, dry climate of the western Antarctic Peninsula becomes warmer and more humid, phytoplankton is decreasing off the northern part the peninsula and increasing further south, Rutgers scientists have discovered.

In research to be published tomorrow in *Science*, they report that levels of phytoplankton off the western Antarctic Peninsula have decreased 12% over the past 30 years. These changes may explain in part the observed decline of some penguin populations. In the southern Peninsula region, there is less sea ice, but also less mixing and fewer clouds, which means more illuminated waters and more phytoplankton. □

Warming Reaches Antarctic Abyss

New Scientist, COPENHAGEN, 11 March 2009, by Catherine Brahic—Even the deepest, darkest

reaches of the Antarctic abyss are feeling the heat, according to new results presented at the climate change congress in Copenhagen on Tuesday. Gregory Johnson, of the US National Oceanic and Atmospheric Agency, says even he was surprised by the findings. The changes could be responsible for up to 20% of the observed global sea-level rise. Johnson and international colleagues have been tracing straight lines across the world's oceans, measuring the temperatures of the water from the bottom right up to the surface. The researchers are particularly interested in the masses of cold water that sink down to the abyss along the shores of Antarctica before moving north along the ocean floor into the Atlantic, Pacific and Indian Oceans. Early results show that abyssal water is warmer now than it was in the 1990s. The water that travels from Antarctica into the south-eastern Indian basin is roughly 0.1°C warmer; into the Pacific, 0.03°C warmer; and the deep abyssal Atlantic water, 0.04°C warmer. In both the southeast Indian Ocean and in the Pacific, the water is also less salty today than it was in the 1990s. Most likely, says Johnson, this is a result of dilution from melting Antarctic ice. □

Airborne Whale-cam on Minke Trail

Sydney Morning Herald, HOBART, 23 March 2009, by Andrew Darby—An infrared camera has shone light on one of the most divisive arguments of whale research: how many minke whales are there in the Antarctic? Australian scientists used the camera to see what the human eye could not—trails of warmer water left on the sea's surface. "These are quite long trails left when a whale breaks the temperature meniscus at the surface," said Nick Gales, a biologist at the Australian Marine Mammal Centre. The breakthrough offers help in refining counts of whale abundance that now rely on statistical formulae to include unseen whales. Dr Gales said hundreds of whales were seen in the pack ice survey—more killer whales than minke whales. □

Giant Ice Sheet Is Safe—for Now

ScienceNOW Daily News, 18 March 2009, by Phil Berardelli—Researchers report in two papers tomorrow in *Nature* that the West Antarctic Ice Sheet could indeed begin to collapse sometime in the next century or so if nearby ocean temperatures increase roughly 5°C—a possibility if current warming trends continue. If that warming occurs, the sheet could totally collapse in a few thousand years but contribute to sea-level rise much sooner. □

Autosub3 Ventures Beneath Ice Shelf

National Science Foundation press release, 17 March 2009—British and American scientists have successfully deployed a robot submarine on six missions beneath an Antarctic ice shelf using sonar scanners to map the seabed and the underside of the ice. The research is part of a larger project to study the dynamic Pine Island Glacier and to understand how increasing ocean temperatures triggered by a warming climate may affect the melting of the West Antarctic Ice Sheet (WAIS) and global sea-level rise. The robot explorer, *Autosub3*, was deployed from R/V *Nathaniel B. Palmer* to investigate the underside of the ice shelf and measure changes in salinity and temperature of the underlying water. After a test mission in unusually ice-free seas in front of the face of the glacier, the researchers started with three 60km round-trip forays under the floating ice shelf

and extended the length of missions to 110km round trip. In all, more than 500km of the ocean beneath the ice was profiled. A completely autonomous robot with no connecting wires with the ship and no pilot, *Autosub3* is powered by 5,000 ordinary D-cell batteries. □

Breeding Penguin Couples Stay Close in Crowd

New York Times, 16 March 2009, by Henry Fountain—To keep warm and conserve energy during mating season, emperor penguins huddle with hundreds of other birds. How does a silent pair of emperors avoid becoming separated amid all the confusion? According to a study in *The Proceedings of the Royal Society B: Biological Sciences*, they stick close by each other. André Ancel of the Hubert Curien Multidisciplinary Institute in Strasbourg, France, and colleagues attached data loggers to four breeding pairs in a colony of 3,000 emperors near Dumont d'Urville Station. The devices recorded when temperatures rose and light intensity decreased, evidence that the penguins were huddling. The researchers found that both members of a pair participated in the same huddle 84% of the time, with one penguin entering or leaving the huddle within a few minutes of the other. That suggests the mates kept in physical, or at least visual, contact almost all of the time. □

Acidic Southern Ocean Corrodes Sea Life

Scientific American.com, 8 March 2009 by David Biello—The shells of tiny ocean animals known as foraminifera—specifically *Globigerina bulloides*—are shrinking as a result of the Southern Ocean's acidifying waters. The reason behind the rising acidity: higher CO₂ levels in the atmosphere. Andrew Moy at the Antarctic Climate & Ecosystems Cooperative Research Center in Hobart, and his colleagues report in *Nature Geoscience* this week that they compared *G. bulloides* shells in ocean cores (providing records that stretch back 50,000 years) with samples from traps collected between 1997 and 2004. They found that modern *G. bulloides* could not build shells as large as the ones their ancestors formed as recently as century ago; in fact, modern shells were 35% smaller than in the relatively recent past. □

Chile, Argentina Stake Antarctic Seabed Claim

Agence France Presse, SANTIAGO, 5 March 2009—Ten Chilean and Argentine lawmakers gathered in the Antarctic to stake territorial rights, officials said. Chile and Argentina's territorial claims came in response to a British bid submitted to the United Nations in October 2007 for sovereignty over more than one million km² of seabed off Antarctica. □

IceCube Building Goals Exceeded

University of Wisconsin-Madison press release, 25 February 2009—As the 2008-09 Antarctic drilling season concludes, the IceCube Neutrino Observatory is on track to be finished as planned in 2011. IceCube is constructed using a hot-water drill to bore holes one and a half miles deep into the ice. Strings of optical sensors are lowered in and frozen into place. By optimizing their drilling procedures, the IceCube team installed 19 strings of optical sensors this season, surpassing the original goal by three, and still finished a week ahead of schedule. A total of 59 strings containing 3,540 basketball-sized digital

optical modules (DOMs) are now embedded in the ice near the South Pole. When completed, the detector will consist of more than 5,000 DOMs spanning a cubic kilometer of deep Antarctic ice. □

Melting Sea Ice May Doom Emperors

Reuters, WASHINGTON, 26 January 2009, by Will Dunham—Emperor penguins could be pushed to the brink of extinction by the end of this century due to the melting of Antarctic sea ice caused by global climate change, scientists said Monday. Researchers led by biologists Stephanie Jenouvrier and Hal Caswell of the Woods Hole Oceanographic Institution used mathematical models to predict how climate warming and the resulting loss of sea ice would affect a big colony of emperor penguins at Terre Adélie. Their models on average forecast a decline of 87% in the colony's population. □

Ice Declining Faster in Both Arctic and Antarctic **International Council for Science (ICSU)**

press release, 26 February 2009—Research from the International Polar Year provides new evidence of the widespread effects of global warming in the polar regions. Snow and ice are declining in both polar regions, affecting human livelihoods as well as local plant and animal life in the Arctic, and global ocean and atmospheric circulation and sea level. These are but a few findings reported in "State of Polar Research," released February 25 by the World Meteorological Organization (WMO) and the ICSU. It now appears clear that the Greenland and Antarctic ice sheets are losing mass contributing to sea level rise. Warming in the Arctic is much more widespread than it was thought prior to the IPY, and it now appears that the rate of ice loss from Greenland is increasing.

Researchers also found that in the Arctic, during the summers of 2007 and 2008, the minimum extent of year-round sea ice decreased to its lowest level since satellite records began 30 years ago. □

Germany Opens New Neumayer

Deutsche Presse-Agentur, 20 February 2009—A new 26 million Euro (\$34 million) research base inaugurated Friday by Germany is built on stilts and can be jacked up higher so that it always remains above snowdrifts. Two previous Neumayer Stations have been wrecked and buried as the ice shelf under them deformed. The ice surface is raised by about one metre of new snow every year. Neumayer III is built on 16 stilts and with enough hydraulic power to raise the 2,200-ton complex even higher above the Ekstrom Ice Shelf. German Science Minister Annette Schavan officially opened the station from Berlin by video link. Scientists will collect ocean and atmospheric data that are a key to climate-change policies, with a focus on the state of the ice shelf and changes in world sea levels. Nine people will be able to overwinter, while more scientists will visit in summer. The station has 40 beds in 15 apartments, as well as offices, laboratories and a small clinic. The 1,850m² station is run by the Alfred Wegener Institute, the German federal polar research agency. □

(Another) Antarctic Cruise Ship Grounds

www.marinelog.com, 17 February 2009—Quark Expeditions' M/V *Ocean Nova* grounded at 68°08'S,

CONTINUED ON PAGE 11

Longest APS Membership

Mr. Zenya Taniguchi of Aichi, Japan, mentioned in "Membership News" in the last issue of *The Polar Times*, holds the longest membership in the American Polar Society, having become a member in the very year of our founding, 1934.

It's possible that there are other members who joined then, and if so, we would like to hear from them!

Mr. Taniguchi kindly supplied some information about his longtime interest in the polar regions and the APS.

"Having retired from the Daily Indus-



PHOTO COURTESY OF MR. ZENYA TANIGUCHI

"... I was honored to receive a membership card..."

trial Newspaper in Tokyo, I formed with friends of mine a private club of polar regions research (the first president was Lieut. Nobu Shirase) in the year 1933.

"I had known the APS for the first time through a letter by Ivar Hamre (a Norwegian whaler and polar historian) to Lieut. Nobu Shirase, Japanese Antarctic explorer," he writes. "Then I sent my letter for admission to ask Mr. August Howard (ex Horowitz). After some days I was honored to receive a membership card from him; I'm the first member from Japan, he said afterwards."

Mr. Taniguchi writes that he has "not yet" been to the Arctic or Antarctic.

"I'm now 96 years old, being at the gate of death, but it's happy," he writes. "I can read the small words of *The Polar Times* and other newspapers. God helps!" □

Much of Antarctic Is Warming More Than Previously Thought

University of Washington press release, 19 January 2009—Scientists studying climate change have long believed that while most of the rest of the globe has been getting steadily warmer, the East Antarctic Ice Sheet has actually been getting colder.

But new research shows that for the last 50 years, much of Antarctica has been warming at a rate comparable to the rest of the world. In fact, the warming in West Antarctica is greater than the cooling in East Antarctica, meaning that on average the continent has gotten warmer, said Eric Steig, a University of Washington professor of Earth and space sciences.

"West Antarctica is a very different place than East Antarctica, and there is a physical barrier, the Transantarctic Mountains, that separates the two," said Steig, lead author of a paper documenting the warming published in the Jan. 22 edition of *Nature*.

For years it was believed that the relatively small Antarctic Peninsula was getting warmer, but that the rest of the continent—including West Antarctica, the ice sheet most susceptible to potential future collapse—was cooling.

Steig noted that the West Antarctic Ice Sheet, with an average elevation of about 6,000 feet above sea level, is substantially lower than East Antarctica, which has an average elevation of more than 10,000 feet. While the entire continent is essentially a desert, West Antarctica is subject to relatively

warm, moist storms and receives much greater snowfall than East Antarctica.

The study found that warming in West Antarctica exceeded one-tenth of a degree Celsius per decade for the last 50 years and more than offset the cooling in East Antarctica.

"Simple explanations don't capture the

complexity of climate," Steig said. "The thing you hear all the time is that Antarctica is cooling and that's not the case. If anything it's the reverse, but it's more complex than that. Antarctica isn't warming at the same rate everywhere, and while some areas have been cooling for a long time the evidence shows the continent as a whole is getting warmer." □

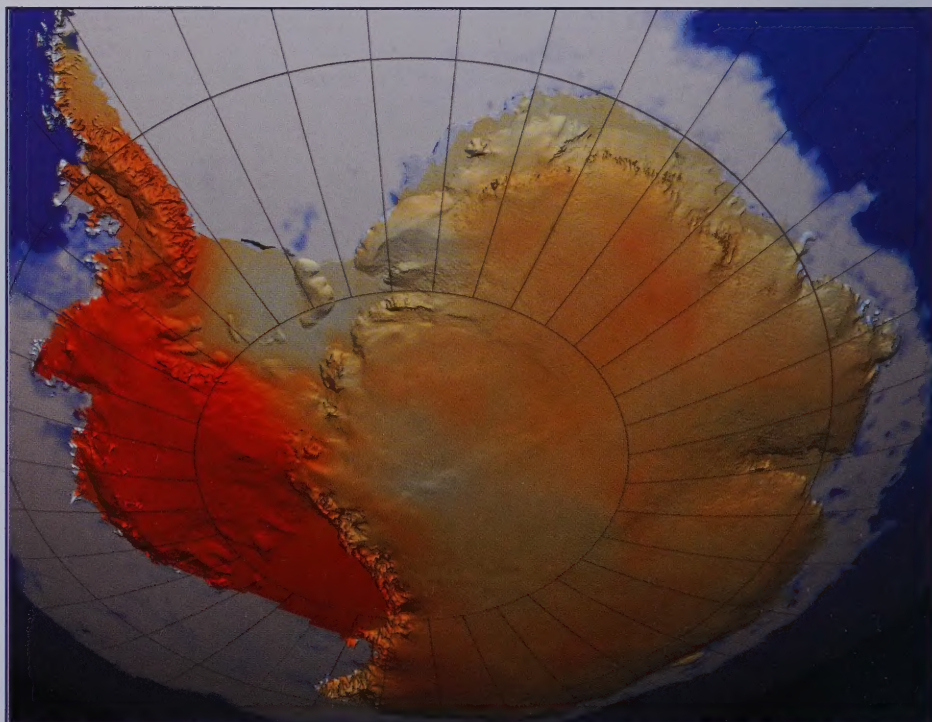


PHOTO COURTESY OF NASA

During the last 50 years, warming in West Antarctica has more than offset the cooling in East Antarctica.

Antarctica Tour Operators Hold Annual Meeting

by Steve Wellmeier, IAATO Executive Director,
and John Splettstoesser, Advisor to IAATO

The International Association of Antarctica Tour Operators (IAATO) held its annual meeting in Providence, Rhode Island, 8-11 June 2009. IAATO membership now totals 110 (from 16 countries and the Falklands Islands/Islands Malvinas), consisting of ship owners and charterers, ship agents, suppliers, conservation groups, travel agents, land-based operators and government offices.

Topics of discussion were follow-ups from the Antarctic Treaty Consultative Meeting in Baltimore, 6-17 April 2009, in which tourism was discussed in several sessions. *Explorer's* sinking in November 2007 was discussed in light of the Liberia Flag State report's release (see story in this issue), leading to safety issues and recommendations for the future, such as closed lifeboats versus open lifeboats, and requisite Antarctic experience on the bridge.

Other issues discussed include the 2008-09 groundings of *Ushuaia* and *Ocean Nova* and implications of a ban proposed on various grades of ship fuel that could affect several operators and types of vessels beginning with the 2010-11 season. Members also decided to move forward and develop a Tiered-Risk Assessment, which would provide a framework and guidance to vessel operators depending on various risk factors, such as seasonality, ice conditions, suitability of vessel hull, and geographic sector visited.

A forum was held on 11 June to allow IAATO members and attending Treaty Parties to discuss the challenges and opportunities facing both Governments and tour operators, and how all can most effectively work together to ensure sensible tourism management and regulation.

IAATO's 2010 meeting will be held 21-24 June in Turin, Italy. □



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ANTARCTIC NOTES — CONTINUED FROM PAGE 9

67°06' W in Marguerite Bay, approximately 2km from Argentina's San Martin station. An initial assessment of damage indicated no imminent danger and no threat to lives. There is no sign of leakage of any kind from the vessel and no environmental damage is anticipated. Aboard *Ocean Nova* are 65 passengers and 41 staff and crew. Weather conditions at the site at the time of the incident report: 40-50 knot winds, moderating in the afternoon. (Editors Note: Quark sister ship *Clipper Adventurer* took the passengers aboard and *Ocean Nova* floated free the next day.) □

Hundreds of Identical Species Thrive in Both Polar Regions

Census of Marine Life press release, 15 February 2009—The icy oceans of the Arctic and Antarctic have revealed a trove of secrets to researchers, who were surprised to find at least 235 species live in both polar seas despite an 11,000-kilometer distance in between. The scientists found marine life that both poles apparently share in common include marathons such as some great whales (including the blue, humpback and fin) and birds, but also worms, crustaceans, and angelic snail-like pteropods, the latter discoveries opening a host of future research questions about where they originated and how they wound up at both ends of the Earth. DNA analysis is underway to confirm whether the species are indeed identical. The scientists also documented evidence of coldwater-loving species shifting towards both poles to escape rising ocean temperatures. The full Census report will be released 4 October 2010. □

New Antarctic Fish Discovered

LiveScience, 6 March 2009—A Spanish researcher has discovered a new species of fish in an area of the Antarctic Ocean that has not been studied since 1904.

The fish, given the name *Gosztomyia antarctica*, was found at a depth of 615m in the Bellingshausen Sea, an area between two islands along the west side of the Antarctic Peninsula.

The area has been little explored by scientists because it is relatively inaccessible and the ocean floor beneath it has not been mapped, said the researcher, Jesús Matallanas of the Autonomous University of Barcelona.

Since the Belgica expedition, which obtained two unique specimens of fish in 1904, no one has fished in the area.



Gosztomyia antarctica

Matallanas collected four specimens of the newfound species—measuring 25cm to 30cm—in 2003 and 2006. His findings were detailed in January's issue of *Polar Biology*.

"One of the most significant results is that the ichthyofauna of the Bellingshausen Sea, contrary to what was previously believed, is more closely related to that of the Eastern Antarctic than the Western," Matallanas said. □

PHOTO: JESÚS MATALLANAS / SINC

Art from the Ends of the Earth

by Jeff Rubin

A fascinating exhibition at the Peabody Essex Museum in Salem, Mass. gave visitors the rare opportunity to view more than 50 artworks depicting both polar regions.

"To the Ends of the Earth: Painting the Polar Landscape," curated by Samuel Scott, the PEM's associate curator of maritime art and history, ran from 8 November 2008 to 1 March 2009.

"There have been single-artist shows before, but pulling together works showing the Arctic and the Antarctic really hadn't been done—this is the first iteration I could find," says Scott, who put together the exhibition in just two years: "It was a sprint the whole way."

Nineteenth-century American artist Frederic Edwin Church's stunning "Aurora Borealis" (1865), a seven-foot-wide wonder, is unquestionably the centerpiece of the show. Even though Church's most famous polar picture, "The Icebergs" (1861), now one of the highlights of the Dallas Museum of Art, was unavailable for loan, his "Aurora" is a stunner. Church journeyed to Labrador and Newfoundland in 1861 in order to paint icebergs.

Among other highlights of the show—and there were many—are George Marston's "Aurora Australis" (1908), painted on a panel taken from a crate of tea during Shackleton's "Nimrod" expedition; and William Bradford's monumental "Sealers Crushed by Icebergs" (1866), showing a large group of sealers marooned on ice floes after their ships have been, respectively, crushed and burned in the Arctic Ocean. This painting is one of 12 by Bradford in the show.

Ice understandably is one of the exhibition's primary subjects, and Canadian painter Lawren Harris' view of icebergs in Davis Strait is a nearly-abstract depiction of striped beauties. Church's wonderful oils of icebergs and schooners are almost intimate, capturing the changing play of light over the bergs.

Although looking at reproductions is not as satisfying as seeing the actual artworks, Samuel Scott's 68-page catalog (with 54 color and black & white plates) *To the Ends of the Earth: Painting the Polar Landscape*, is available for \$15.95 from the Peabody Essex Museum bookshop <<http://www.pemshop.com/detail.aspx?ID=1053>>. □



Attributed to Charles Wilkes (American, 1798–1877), *USS Vincennes in Disappointment Bay*, after 1842. Oil on canvas, 23-1/2 x 35-1/2 inches. Peabody Essex Museum, Museum Purchase, 1902, M265. This painting shows the flagship of the United States Exploring Expedition of 1838–1842 off the coast of Antarctica in January 1840, at the furthest point south that any of the vessels on that expedition reached. The vessel appears to sit serenely in an icy setting, surrounded by charming, if somewhat inexpertly rendered, local fauna. However, navigation among sea ice in a large sailing vessel with no engine was one of the most challenging and dangerous feats of seafaring. The vessel's sails are counterbalanced to hold it in position while the crew collects ice to melt for freshwater. That this operation was accomplished successfully and without mishap was a tribute to the skills of the vessel's crew and its commander, Captain Charles Wilkes, to whom the painting is attributed.



COURTESY OF THE PEABODY ESSEX MUSEUM

Frederic Edwin Church (American, 1826-1900), *Aurora Borealis*, 1865. Oil on canvas, 56-1/8 x 83-1/2 inches. Smithsonian American Art Museum, Washington. In the left foreground is the American exploring schooner *United States*, commanded by Church's friend, Arctic explorer Isaac Israel Hayes (1832-1881) on an expedition to Ellesmere Island in 1860-61.



COURTESY OF THE PEABODY ESSEX MUSEUM

George Chambers (British 1803-1840), *Bark Auriga in Antarctic Waters*, ca.1834. Oil on canvas, 28-1/2 x 48 inches. Peabody Essex Museum, Gift of Fritz Gold, 1998, M27411. This painting shows the British bark *Auriga*, which appears not to have visited Antarctica itself (it is not, for example, listed in R.K. Headland's authoritative *Chronology* – see "Due South" in this issue) but it may have travelled through iceberg-laden waters on one of its many voyages from London to the Australian colonies in the 1830s.

Why Did *Explorer* Sink?



Her master misjudged ice conditions.

Christian Science Monitor, 20 April 2009, by Colin Woodard—Until now, the causes of the sinking of MS *Explorer* on Nov. 23, 2007 (see *The Polar Times*, January 2008) have remained a mystery, with her owners, Toronto-based G.A.P. Adventures, refusing to comment beyond initial reports that she struck submerged ice and succumbed to uncontrollable flooding.

But last week the results of an official investigation became public. It places blame on the captain having misjudged ice conditions and the failure of one of the ships' watertight doors.

The report by the Liberian Bureau of Maritime Affairs, through which *Explorer* was flagged, described how the ship was damaged after the captain attempted to plow through

what one passenger described as "a long wall of solid ice," presumably a ridge of broken ice forced up by pressure. The report made a series of recommendations to improve safety on polar cruises. Among them: that these ships carry at least partially-enclosed lifeboats and enough im-

mersion suits for everyone aboard, and that training requirements for ice navigation be better spelled out. Currently, the International Maritime Organization doesn't have formal competency training requirements for ice navigators. A Chilean naval icebreaker that reached the scene shortly after *Explorer's* passengers were rescued, concluded that the ship had not been traveling through a thin ice field, as her captain had thought, but rather an older, thicker field containing a mix of dangerous glacial ice chunks, some reportedly as large as 15 feet high with underwater rams as long as 45 feet.

Explorer "sustained puncture and slice wounds" that extended for more than eleven feet along her hull and sank because flood-

ing could not be contained within the affected watertight compartment, the report said. Crew members told investigators that a hatch between engine rooms turned out to have faulty seals, allowing other parts of the ship to flood.

The report concluded that Bengt Wiman, on his first Antarctic cruise as captain, "transited the ice field with an overconfident attitude regarding the capabilities of the *Explorer* and, in all likelihood, struck the 'wall of ice' at a rate of speed that was excessive."

But the founder and CEO of G.A.P. Adventures, Bruce Poon Tip, expresses dissatisfaction with the investigation. "We dispute pretty much everything in the report," he says, but declines to offer his own version of events or to respond point by point to the report's findings. "They are entitled to their opinions, but I am not interested in getting into an argument with a flag state."

The report also praised the captain for his decision to evacuate the passengers to lifeboats early in the incident, before the crippled ship drifted back into the ice field, where lifeboats would have been difficult or impossible to deploy. The chief engineer was commended for jury-rigging a fuel supply for an auxiliary generator, which allowed the captain to maneuver the ship into a position where the lifeboats could be deployed.

The full 97-page report can be downloaded at: <http://www.photobits.com/dl/Explorer%20-%20Final%20Report.PDF> □

Rare White Ellie Seal Photographed

redorbit.com, 20 May 2009, by Matt Walker—Researchers have confirmed the first-ever sighting of a white southern elephant seal. The seal was spotted in August 2008 on Whale Bird Beach on Marion Island. Unusual colors are more common in eared seals such as sea lions and fur seals, but they are rare for true seals, a group that includes elephant seals. The journal *Polar Biology* published details of the seal, which has creamy white fur but normal brown eyes and nose. "This is the first confirmed case of leucism in the species," said Ryan Reisinger of the University of Pretoria in South Africa, one of the researchers who discovered the animal. The young female seal is leucistic, rather than albinistic. Leucistic animals have little pigment and appear white all over, but with dark colored eyes; albinism, a condition that is inherited, causes a lack of pigment in just the eyes, skin and hair. The seal was spotted in August 2008 on Whale Bird Beach. The team again saw the seal several days later and was able to get close enough to confirm its leucism, tag it and take a skin biopsy. Reisinger estimates it to be between one and two years old. □



Leucistic, not albino

PHOTO BY RYAN R. REISINGER

Antarctica Calling

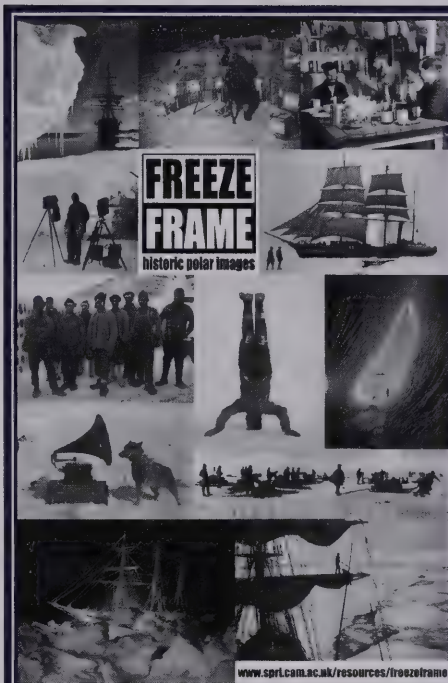
For the last few summers, the Antarctic Society “By and For All Antarticans” has enjoyed some gatherings along the coast of Maine at the seaside home of society treasurer Paul Dalrymple. Numerous attendees visited with fellow colleagues, some whom they had not seen in years. Old, young, science, military, IGY, NSF were all represented and all shared an affinity for the seventh continent. It was a great time. Dr. Ed Williams set up a camera and managed to catch many members in recorded interviews. The Society decided to organize these talks and present them in a three-disc series entitled “Antarctica Calling.”

Over thirty individuals spoke for about twenty minutes each of their experiences and work in and around Antarctica. What emerges is a wonderful series of talks by an interesting assortment of scientists and other Antarticans that include Bob Dodson of the Ronne Antarctic Expedition 1947-48 and Sir Charles Swithinbank of the Norwegian-British-Swedish Antarctic Expedition 1949-52. There are interviews from participants of the International Geophysical year 1957-58 as

well as later decades covering a wide variety of disciplines, experiences and Antarctic locales.

Interspersed between interviews are scenes from the oils and watercolors of Lucia deLeiris and the photography of Ann Hawthorne. The DVD also has music from musicians who attended the gathering, as well as bagpipe music played by an IGY participant. The menu is arranged by the various speakers, so one can pick and view in order of your choice. Each disc runs about two hours, making this series an archival treasure house of recollections and stories from over 60 years of Antarctic history.

The three-disc series is available through the Antarctic Society for \$50 to nonmembers and \$35 for members. Send a check for \$50 (non-member) or \$35 (member) to: Dr. Edwin L. Williams, 4536 Greenlee Rd SW, Roanoke, Virginia 24018. For those interested in Antarctic Society membership, please contact Dr. Paul C. Dalrymple, Box 325, Port Clyde, Maine 04855 or pcdal@roadrunner.com. For even more information, check out the Antarctic Society website at <http://www.antarctican.org>. □



Freeze Frame

The Scott Polar Research Institute in the University of Cambridge, the world's foremost collection of polar-related material, has digitized more than 20,000 of its 100,000-strong picture archive

These have been made available online at www.freeze-frame.ac.uk

Images from 13 Antarctic expeditions and eight Arctic expeditions are included, ranging from the British Naval Northwest Passage Expedition of 1845-48 to Ran Fiennes' bi-polar Transglobe Expedition of 1979-82.

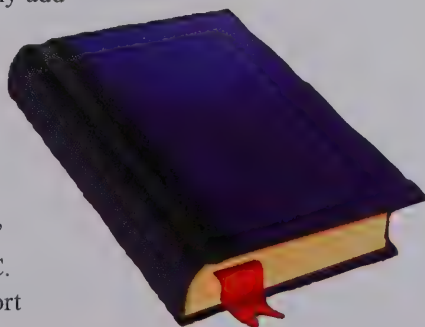
All of the expeditions led by Captain Robert F. Scott and Ernest Shackleton are included.

To date, Freeze Frame has taken two years and cost £420,000. □

South Pole Library Always Growing

The new Amundsen-Scott South Pole Station is fully operational — and so is the station's Ruth J. Siple Memorial Library. Dedicated to the late, beloved wife of the late Dr. Paul Siple of Antarctic fame, the library is a most appropriate and fitting tribute to this gracious lady who visited the South Pole at the dedication of the Dome station in January 1975.

The library is continuously adding materials (books, CDs, DVDs). Anyone wishing to make a financial donation to support future acquisitions may write checks payable to the “Ruth J. Siple Fund” and send them to Dr. Paul C. Dalrymple, P.O. Box 325, Port Clyde, ME 04855-0325 □



CORRECTION

Dear Editor:

Re “Antarctic Artist Robert E. Hogue,” *The Polar Times*, Jan. 2009: I received an email from a retired Navy man, Maurice Gibbs, from Nantucket, who wrote about helping J.Q. Tierney-Holley with his soundings. He points out that the ship in the picture on p. 26 is not the *Arneb*, but the *Greenville Victory*. The *Greenville Victory*, with a merchant navy crew, had a yellow stripe around its funnel and the *Arneb*, an attack transport with a Navy crew, did not. A small point but interesting to hear from an eye witness. —

Regards, Steve Dibbern

Norwegian-American Scientific Traverse Completed

by Team Members Tom Neumann, Ted Scambos and Stein Tronstad

The Norwegian-American Scientific Traverse of East Antarctica 2007–2009 rolled in to Norway's Troll Station on 21 February 2009, completing the field part of this large IPY project.

The traverse was welcomed by the entire station crew, by the directors of the Norwegian Polar Institute, by representatives of the Norwegian government, and by guests from South Africa, Germany, and Canada—including the South African Minister of Science and Technology, visiting en route from SANAE to Novolazarevskaya.

A highlight of the Norwegian-US scientific collaboration during the International Polar Year, the traverse drew significant logistic and scientific contributions from the Norwegian Research Council, the U.S. National Science Foundation, and the Norwegian Polar Institute.

"Neither the US nor Norway could have completed this project, either scientifically or logistically, on their own," says Tom Neumann, who served as expedition leader of the second traverse season.

The crossing of a huge swath of the East Antarctic ice sheet, from the U.S. South Pole station to Troll, was the second field season of a



Photo provided by Ted Scambos, NSIDC/University of Colorado

Part of the traverse team revels in the midnight sun at Kohnen Station, 4 February 2009. Located at 74°7'S, 1°36'E, the station was built by Germany's Alfred Wegener Institut (AWI) in 2001 and named after geophysicist Heinz Kohnen (1938–1997). It is constructed of containers from the previous Filchner Station. The key feature of the station remains invisible – a trench 66m long, 6m deep and 5m wide, covered by a wooden roof and a thin layer of surface snow. It accommodated the European Project for Ice Coring in Antarctica (EPICA), the primary purpose of the station. Drilling began in 2001 and was completed in 2006 when bedrock was hit at a depth of 2774m.

larger four year project; the first season, in 2007–2008, went from Troll to the Pole by a different route.

The project is investigating climate variability in Dronning Maud Land of East Antarctica on time scales of years to a million years, establishing spatial and temporal variability in snow accumulation over this area of Antarctica to understand its impact on sea level and investigating the impact of atmospheric and oceanic variability on the chemical composition of firn and ice in the region.

"The goal was a new level of understanding of a region barely ever explored previously—we wanted to know the bedrock shape, the ice thickness, the snow accumulation and how the snow evolves, and of course the climate history," says team member Ted Scambos, Senior Research Scientist at the National Snow and Ice Data Center. "I think the data we collected will provide years of work and many new insights into this region."

Interestingly, the two traverses also revisited areas first explored by traverses in the 1960s, and so is also trying to detect possible changes and to establish benchmark data sets for future research. The traverse crossed nearly 20 degrees of latitude, spanned the plateau, then the

coastal mountains, right to the shelf edge, then back to Troll.

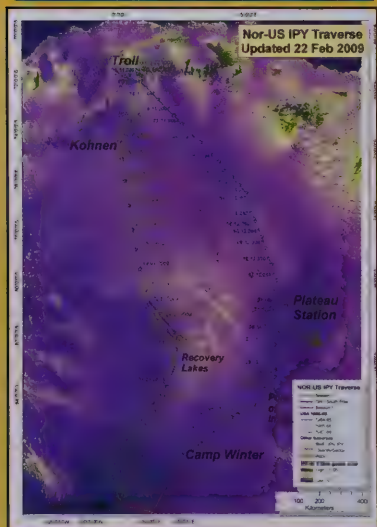
"It was spectacular," says Scambos. "We lived at 3000 meters altitude for about 3 months, at temperatures of -25°C to -40°C more or less the whole time."

The scientists involved in the project are already busy at work with all the data collected en route, and dozens of scientific papers will follow. The 12 traverse crew members, the crew members of previous parts of the traverse, and innumerable support staff are happy to see that their efforts will bring forward yet another piece of knowledge to the giant puzzle that is the climate of the icy continent.

We have enjoyed a very successful season, and have met virtually all of our science objectives.

Ice cores

The most detailed climate information will come from analysis of the ice cores we have collected. Back in our labs in Norway and the United States, we will measure the chemistry and physical characteristics of these cores to determine how much snow falls at the coring sites each year, and how that snow fall rate has changed through time. The hand-drilled cores



will span the most recent 50 years; the 30m cores we collected at sites 2, 3, 4, and 6 should record the last 200 years of changes; while in the 90 m cores, we were typically seeing about 2000 years of polar ice sheet climate history, and a record of atmospheric changes as well.

While the cores will provide very detailed information, they only give information at a very specific place. When comparing the size of the ice core (about 50 sq cm) with the size of the ice sheet (about 10 million sq km), it is apparent the ice core is a very small sample of the total. The question becomes: how representative is an ice core of a larger area? The radar surveys help us address this issue and extend the reach of the ice cores.

Radar surveys

We used five different radars this season, which image the internal layers of the ice sheet. The high-frequency radars image the upper 20-100m of the ice sheet, while low-frequency radar images all the way to the base of the ice. The layers revealed by these systems are used to determine how the accumulation rate varies along the traverse route. In areas with relatively low accumulation rate, these layers are closer to the surface. In areas with relatively high accumulation rate, the layers are buried deeper. The ice core data serves as calibration points for the radar layering, and provides the ages for the near-surface layers detected by the radars. The radar data allows us to extend the ice core data from point measurements into data along the lines covered by the radars.

Satellite data

Satellite data allows us to further extend the footprint of the ice cores. Since the mid-1970s, satellites have imaged East Antarctica at a variety of wavelengths, but without detailed calibration, it is difficult to understand how to interpret these images. The team measured the physical properties of the upper 2m of the snow in snow pits (e.g. grain size, permeability, thermal conductivity, density), and will conduct similar measurements on some of the ice cores. These measurements will make it possible to determine exactly what has been recorded in satellite images. Information on the physical properties, coupled with the ice core data, will make it possible to better understand the changes recorded by satellites over the past 30 years, and will extend the reach of our analyses to cover the entire region.

Thermistor strings

While the radar data and a combination of

satellite and physical properties data allow us to extend the results of the ice core analyses over a wider area, we also made use of the holes produced by collecting the deep ice cores. Ted has installed two thermistor strings to directly measure the ice temperature in the deepest core holes. The temperature on the ice sheet surface changes with the weather, but the temperature deeper in the ice sheet only changes very slowly as the climate changes. At 90m depth, the ice temperature is determined by the average temperature over the past 30–50 years. By recording this temperature through time (and these stations should be continuously operational for 3–5 years) we can determine how the surface temperature has changed through time. Though not as detailed as a record from a weather station, since there are no weather stations in this part of the continent, Ted's thermistor measurements are as close as we can come to measuring surface temperature changes directly.

Recovery Lakes

Our route this season also provided an opportunity to explore the Recovery Lakes region, an area last studied during a traverse in the 1965-66 field season. This area is marked by a series of lakes beneath the ice sheet which lie at the head of the Recovery Ice Stream, one of the largest glaciers draining East Antarctica. The lakes were first discovered via satellite in 2006. There are four well-identified subglacial lakes in this area, and several other potential lakes. The lakes range in extent from 600 sq km to about 1500 sq km, making these the largest subglacial lakes in Antarctica, aside from Lake Vostok.

Using our radar systems and high-precision gravity and GPS measurements, we mapped the ice thickness, internal layering, surface topography, and gravity variation along our traverse route and along several shorter side traverses over the lakes. These measurements detail the size and shape of the lakes, and provide information about the water depth, as well as how the ice flows over the lakes. Although the lakes were first discovered by satellite imagery, ground-based surveys are the best way to determine the lake geometry, and the ice flow characteristics.

We collected over 800 km of radar data along our side traverses, installed two high-precision GPS stations, and conducted high-precision GPS surveys of the surface topography along our routes. The low-frequency radar has revealed that two of the lakes are actually connected, the average ice thickness over the lakes is between 3400m and 3500m (meaning that these lakes are actually entirely below sea level), while the ice thickness over the lake margins and grounded parts of the ice sheet is typically less than 3000m. The high-frequency radar surveys have shown that there are significant differences in accumulation rate across the lake margins, and that there are several areas with virtually no accumulation (so-called glaze areas). The gravity data will take more time to fully process, but initial results suggest water depth in excess of 100m.

By the time the project ends in 2011, we will have made great progress in understanding how this part of Antarctica fits into the larger climate in the southern hemisphere, how the climate here has changed in the past, and how Dronning Maud Land may change in the future.

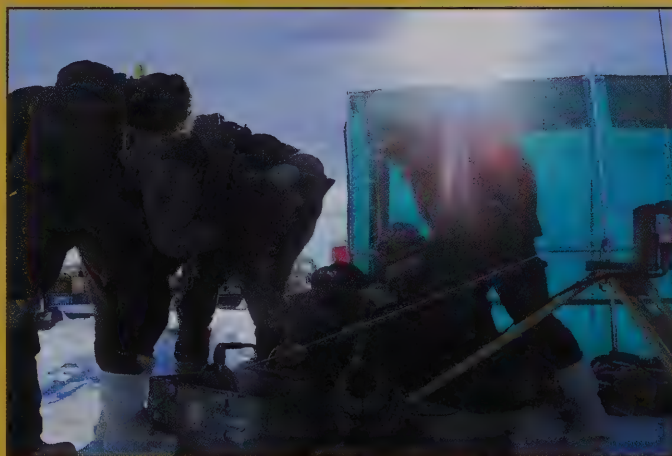
"We had a fantastic, really experienced team of 12, that solved every problem we were faced with," Scambos says, "and we had fun doing it." □

NOTE: This article was compiled from emails and from material by the three authors on the traverse's website, <<http://traverse.npolar.no>>

ABOUT OUR CENTERFOLD:

The signpost at Norway's Troll Station (72°0'S, 2°32'E) at sunset, showing the directions and distances to points north and south. The Norwegian-American Scientific Traverse of East Antarctica arrived at Troll on 21 February 2009 after nearly three months of field work on the large IPY project. □

Photo provided by Ted Scambos, NSIDC/University of Colorado



Peering at the screen of a downhole video camera, team members puzzle over a tricky operation to try to recover a drill bit lost at 92m depth. After 36 hours of "fishing" with a hooked cable, they were successful in retrieving it on 25 January 2009.

Photo provided by Ted Scambos, NSIDC/University of Colorado





A New Life in Alaska

by *Erv Nichols*

In mid-July 2008, my partner, Sandra, and I left Homer, Alaska to work for the visitor center that serves Gates of the Arctic National Park, the Arctic National Wildlife Refuge, and the Kanuti National Wildlife Reserve above the Arctic Circle in the appropriately named “town” of Coldfoot—population 13.

Coldfoot got its name because so many who made it this far during the gold rush period got “cold feet” and turned back. It is half way to Barrow and Prudhoe Bay on the north coast of Alaska via the Dalton Highway, strategically located between Livengood and Deadhorse. Wiseman, another town some 30 miles north, also had a colorful, romantic name, the source of which I never learned. I was sure it would be the experience of a lifetime for us. We were promised a log cabin with no indoor plumbing, running water or electricity, but with lots of time to blog, photograph and explore the “wasteland” around us. My first morning there I encountered three young women on their way to different jobs, all carrying shotguns. Everyone else—Sandra and I included—had their bear repellent spray strapped to their hips. This was NOT Kansas, Toto!

Four months in Alaska and I still had seen only two or three full days of sunshine. It had been a gloomy, cloudy and cold season in Homer and, as we headed into the interior, we were hoping to warm up a bit, but had no such luck. We tent-camped all the way up the highway to save money since we would not have any income again until we started work-



Southern Brooks Range

ing in Coldfoot. On the worst night of our trip, heavy rain beat down on our little California summer tent until it surpassed its capacity to keep us dry. The day was spent in the Laundromat drying clothes and sleeping bags.

In Talkeetna, Alaska, the local rumor has it that this town was the model for the TV show called “Northern Exposure.” It does have that feel to it. It also feels like Big Bear Lake, California, when I arrived there 28 years ago. A tour of the Historical Museum and a lecture on Talkeetna’s history showed many parallels in the development of each. I had to smile at

the stories of earlier times that matched some of my memories of a wonderful, smaller Big Bear.

From Talkeetna to Denali we had more wet weather with soggy tent and contents. While there, we spent three memorable days and three unforgettable nights in the shadows of the continent’s highest peak—Mt. McKinley to some people, but “Denali, the Great

One” to me. We saw the usual array of wildlife: wolves, caribou, bears, moose, etc. We even caught a fleeting glimpse of a secretive lynx. And for a precious few hours, “the mountain was out,” as they say up here. That means we were among the lucky 20 percent of people who ever get to see the magnificent sight of the entire mountain peak because of the dense clouds usually masking it. While tent-camping again, the first night it rained hard all night, and the second night the wind blew hard all night. The third night it rained hard AND the wind blew hard all night.

In Fairbanks we had another chance to dry out and had a few restful nights in an almost deserted Bureau of Land Management firefighters’ bunkhouse, since all the personnel had flown off to California to fight fires there. Fairbanks, meanwhile, was having record rain and flooding. There, we had a day’s training, then continued north on the Dalton Highway, or Pipeline Haul Road as it is also known, some 225 miles to our new assignment. We made the eight-hour journey, on a mostly gravel road full of potholes, at speeds of 50 mph. maximum, in a comfortable, government truck, leaving our little Honda “hybrid” warm and dry in a garage back at the Fish and Wildlife headquarters.

Arriving at Coldfoot around 8 p.m., with six hours of daylight still ahead, we were



Camping on the Dietrich River



Brown Bear at Katmai NP

pleasantly surprised to find the cabin was far above our expectations. It actually did have electricity from a newly installed gen-

erator. The outhouse, however, was a hundred yards away and had to be shared with numerous other folks staying in cabins of the complex, who rode off daily on all-terrain vehicles to work various government projects in the region. The area was also frequented by both black and grizzly bears fairly regularly, gorging, as we did, on the profusion of blueberries everywhere. We made it a priority to re-train our bladders to resist any middle-of-the-night "call of nature." We had no TV, newspaper, telephone or Internet (except at work), but fresh-picked berries every day made it almost worthwhile. Watching pretty, young women riding off in the morning with long hair flowing in the wind and a 12 gauge shotgun strapped to their backs was a bit hard to get used to, but very necessary. We preferred to carry bear spray instead.

Our job was to be representatives of the U.S. Fish and Wildlife Service at the Arctic Tri-Agency Visitor Center, which included the National Park Service and the Bureau of Land Management. Every evening around nine or ten, a bus load of tourists from Princess Cruise Lines would make

a pit stop on their way to Prudhoe Bay, and it was our task to entertain them by showing a movie or computer slideshow about the area. Many had seldom, if ever, been out of the city and had no idea how remote the area was. We had fun telling them: "There was no place to get a Starbucks coffee or a hamburger, and gasoline really was \$5.65 a gallon. Also, it's Coldfoot and Deadhorse, not Deadfoot and Coldhorse. And, yes, it actually was 225 miles south to the grocery store if you ran out of peanut butter."

Eventually we got to fly to a very remote area of Katmai National Park with two other people and a very environmentally minded guide (meaning no firearms). We experienced that part of the world as it may have been if man had never been part of it. Of course, thanks to technology, we were able to "reach back in time" via a small bush plane, and I was able to record it with the latest in digital cameras, then send it out to the world through the Internet.

It felt like we were in "Brown Bear Jurassic Park," surrounded by active, steaming volcanoes and ancient glaciers! We sat among creatures that struck fear and respect in our ancestors as they told stories around their campfires in the dim, distant past. You couldn't help but feel small and insignificant and, at the same time, part of something bigger.

This wonderful, remote world of Alaska is so accessible today that it becomes exceptionally important to save areas like the Arctic National Wildlife Refuge from man's imprint. This is one of the last places on earth we haven't scarred or altered signifi-

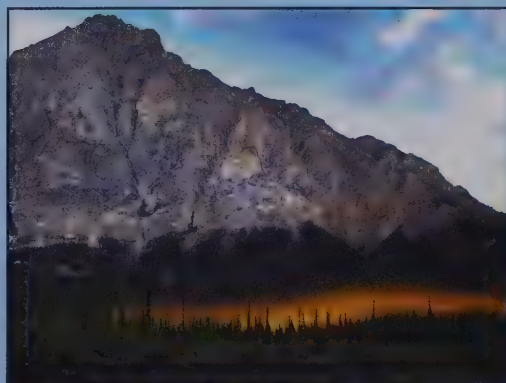
cantly. Certain people would have you believe it's a "barren wasteland" of snow-covered dirt and rock. But under the white blanket is a tremendous variety of life waiting to explode in the short growing seasons given to them. And there are vast numbers of birds and animals that call it home. I believe only man can create a barren waste land.

We are becoming more and more aware that all of life is woven together and that a single effect can affect many organisms and parts of the environment in the complex "web of life." Alaska is known by its vehicle license plates as the "Last Frontier." As I look around, more and more I see it treated the same way as all of America's frontiers of the past—exploited for short-term gain alone. This is our final chance to enjoy such a "last frontier." We must do something different in the future if this area is to survive in its present condition. And the pressures of growing humanity will only become more severe in the years ahead!

The short Arctic summer was soon almost history. We began to see the colors changing to beautiful reds, yellows and oranges. By mid-August the nights (actually, a misnomer) were already dropping below freezing. The official weather people reported heavy wind and snow with avalanche conditions just 75 miles north of us. Now I miss the sun, the hot days, the cool nights and also my tan. I most likely would not do it again, but I would not have missed Alaska and this summer, such as it was, for the world! □



Sandra Noll: Don't look now ... !



Sun on the southern Brooks Range



Denali

Nunatsinniinnikuuit?

by Moki Kokoris

Inuit tamarmik inunngorput nammineersinnaassuseqarlutik assigiimillu ataqqinassuseqarlutillu pisinnaatitaaffeqarlutik. Silaqassusermik tarnillu nalunngissusianik pilersugaapput, imminnullu iliorfigeqatigiittariaqaraluarput qatanngutigittut peqatigiinnerup anersaavani.

Not that it should be expected that many people would need to phonetically translate formal texts from Kalaallisut to English, but to satisfy the reader's curiosity, the above paragraph is Article 1 of the Universal Declaration of Human Rights, specifically: "All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood." Simple, right?

And while we are on the subject of translation, the title of this article means: "Have you been to Greenland before?"—implicitly revealing the next destination in our series about indigenous cultures of the Far North.

Although it is technically only the most prominent dialect, Kalaallisut is nevertheless referred to as the official language of Greenland. The other two regional varieties which feature notably are Inuktun (sometimes called Avanersuaq), the northern dialect spoken in Qaanaaq (Thule), and Tunumiit oraa-

siat, the dialect of Ammassalik in eastern Greenland. As are all Inuit languages, Kalaallisut is polysynthetic, which means that words are formed with a root, one or more prefixes, and a suffix. A single Greenlandic word can thus be very long and can mean what would correspond to a complete sentence in other languages. Considering the simplicity of this lexicon and its spelling, it is easy to understand why the country has a 100% literacy rate....

Like most modern Inuit, the people living in Greenland today are descendents of the proto-Inuit, the Thule culture, which developed in coastal Alaska around 1000AD and expanded eastward through Canada and beyond. This migration reached Greenland by the 13th century, mixing with and eventually replacing the earlier Dorset culture that inhabited the region, and there is evidence that in their journeys, these peoples had contact with the Vikings. The links between the Thule and the Inuit are biological, cultural, and linguistic (many of the more pure Inuit are born with a distinctive blue birthmark at the base of their spines). Today, many Greenlanders refer to



Inuit mother with children, 1900.

themselves as "Kalaallit", and are a significant faction of the indigenous Arctic Inuit population: Inuit meaning "human being." They constitute 85% of Greenland's population, while the remaining inhabitants are primarily Danes.

Before the 1940s, the Kalaallit had minimal contact with Europeans. Although Europeans did pass through on their way to hunt whales or trade furs, very few of them had any interest in settling down on the frozen lands of the Arctic. With little to influence them, the Kalaallit had the region to themselves. They moved between summer and winter camps, following the animals they needed to hunt for subsistence. In winter, they lived in igloos, and in summer, they built tents made of animal hides and bones.

Kallallit beliefs, based heavily on shamanism and animist principles, were



The village of Qaanaaq, located approximately 65 miles north of the base. Qaanaaq is home to about 600 people. This photo was taken in late summer 2007 after the ice on the surrounding water had melted.

U.S. AIR FORCE PHOTO BY COL. LEE VOLLEN COX



closely tied to a system of rituals integrated into the daily life of the people. According to a common Inuit proverb, "The great peril of our existence lies in the fact that our diet consists entirely of souls." Inspired by myths of their harsh environment, the Inuit believed that all things, including animals, have souls like those of humans, and that any hunt that failed to show appropriate respect and customary supplication would only give the liberated spirits cause to avenge themselves.

Fierce though they have always been, the Inuit generally lived with fearful concern for the uncontrollable, believing that to offend a spirit was to risk its interference with an already marginal existence, and they took great efforts to work in harmony with these supernatural powers who provided the necessities of daily survival.

The angakkuq, or shaman, was more healer and psychotherapist than leader, and tended wounds, offered advice, and even invoked the spirits to assist people in their lives. His or her role was to see, interpret and exhort the subtle and unseen. Angakkuqs were not trained; they were held to be born with the ability and recognized by the community as they approached adulthood.

It was commonly held that the cause of sickness was soul theft, in which someone, perhaps an enemy shaman or a spirit, had stolen the soul of the sick person. The angakkuq was called upon to retrieve the stolen soul. The unwell person could remain alive because people were believed to have multiple souls; therefore, stealing one of the souls brought forth illness or a moribund state rather than immediate death. Interestingly, the Ammasalik Inuit of eastern Greenland have a variant in which they believe that individual body joints have their own small souls, the loss of

which would cause localized pain. (Interesting concept with which to perhaps approach the American Arthritis Foundation?)

Whenever game became scarce, the angakkuq would embark on a soul journey, and travel to speak with a mythological being, usually Sedna, the old Sea Woman and central deity, who protected the souls of sea creatures. If the shaman was able to please her, she released the animal souls, thus ending the scarcity of game.

Another task of the angakkuq was to aid fertility, and in this case, the shaman provided assistance not to the woman but to the soul of the unborn child, thereby allowing its future mother to become pregnant.

The long and seemingly endless Arctic nights inspired many tales, myths and legends, but also prompted the creation of simple games, one of them a string game which we know today as the Cat's Cradle, or in the Kalaallisut language, ajurraarurit. Using reindeer sinew, this was the Inuit method of illustrating their storytelling. Similar games were known to be played by other indigenous cultures, but from written descriptions, the most difficult and complex figures are attributed to the Inuit. Anyone with nimble fingers and infinite patience and tenacity who is interested in attempting some of these designs should visit the "Arctic String Figure Project" at <http://www.isfa.org/arctic.htm>, which has an extensive collection of them.

It is the polar night that the Thule Inuit culture holds most dear. "Taaq!" It is dark. This period, which lasts for three months on Thule territory, is far from the death shroud we might imagine. The Inuit compare it to a mother's warm embrace. The Inuit love the darkness. They look forward to it, and it is in this season that their laughter is most often heard. They go visiting, sit together, and they feel united, stronger and more resolute in their confrontation with the pitiless, austere environment. It is in their oqaaluktuara, storytelling, that they connect with the expansive universe, which they poetically interpret as a cathedral whose roof

was lost to infinity.

Like many before them, they turn their eyes to the heavens, understanding that the terrestrial universe and its dark sky can be read as a sacred text. They know the constellations, the planets, the moon, and the aurora borealis, and they read and decipher the messages within. When in danger, the stars are viewed as friends who become their guides. This is all much less lifestyle than it is philosophy. As lyrically recounted in an oqaaluktuara by an Inuit to Knud Rasmussen in 1923, "It is amid such darkness that we know the peace of the elemental, structuring forces of the earth, the shudder of the ice, the hum of stones, the intimate interlocking architecture of equilibrium. Listening, we hear a sound of breathing – and what we hear is the force of the earth, the living energy of the cosmos."

And they, the Inuit of the Far North, have been called barbarians and savages by us, the ostensibly more civilized? Gives us pause to rethink, does it not?

The above contemplative moral aside, we should all feel fortunate that none of us will ever need to participate in a Kalaallisut spelling bee! Ajunngilaq! □

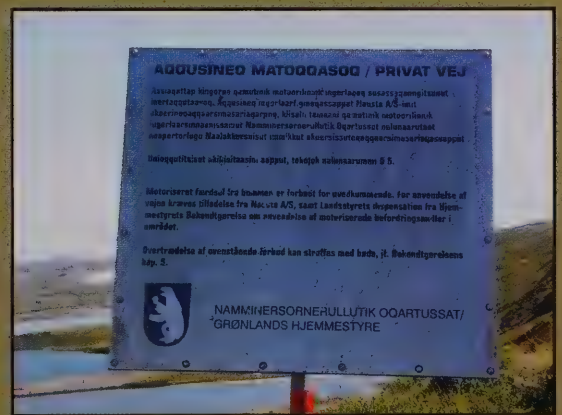


Photo: Algray

"No entry for regular vehicles," a sign in Kalaallisut posted under the authority of Greenland Home Rule, highlands of Isunngua, Greenland.

Kalaallisut word construction:

tusaatsiarunnangittualuujunga
I can't hear very well.

This long word is composed of a root word **tusaa-** - to hear - followed by five suffixes:

- tsiaq- well
- junnaq- be able to
- ngit- not
- tualuu- very much
- junga 1st person singular present indicative non-specific

Sled Dogs Could Hold Key to Diabetes, Obesity

USA TODAY, by Douglas Robson—Sled dogs competing in the Iditarod, which ended Tuesday, are among the most energy-efficient creatures on Earth, with a capacity to run hundreds of miles day after day without showing the normal signs of fatigue.

Could their fat-burning prowess help uncover ways to prevent and treat obesity in Type 2 diabetes?

Michael Davis is on the trail to find out. Davis, a professor at Oklahoma State University who has studied exercise physiology in sled dogs for a decade, recently completed the first phase of research examining how dogs that train for the 1,100-mile Iditarod become “insulin-sensitive” and convert fat to energy so proficiently.

“If we can figure out what exercise is doing to start the process, then we may be able to find how it can be applied to everyone, whether or not they are physically able to exercise,” he says.

The Diabetes Action Research and Education Foundation has contributed one-third of the \$30,000 research grant. Oklahoma State University is bankrolling the remainder.

About 24 million Americans have diabetes. Diet and exercise have been shown to prevent the onset of the more common type 2 diabetes.

Typically, the hormone insulin helps the

body’s cells take up glucose from the blood and turn it into energy. Type 2 diabetics often have problems absorbing glucose in response to the insulin their bodies create.

In January, Davis and collaborators Ray Geor of Michigan State University and Shannon Pratt of

North Carolina State University chose 16 dogs in Iditarod-worthy shape from the kennel of one of this year’s competitors and had them run 22 miles at a healthy clip of 8 mph. Half the dogs were anesthetized for five minutes while researchers took small muscle biopsies from their legs; the other half were measured for insulin sensitivity using catheters.

By calculating the metabolic stress on the muscles again in September and November—when the dogs are not in shape after a summer of inactivity—Davis hopes to understand how the cells are reacting under different physical conditions.

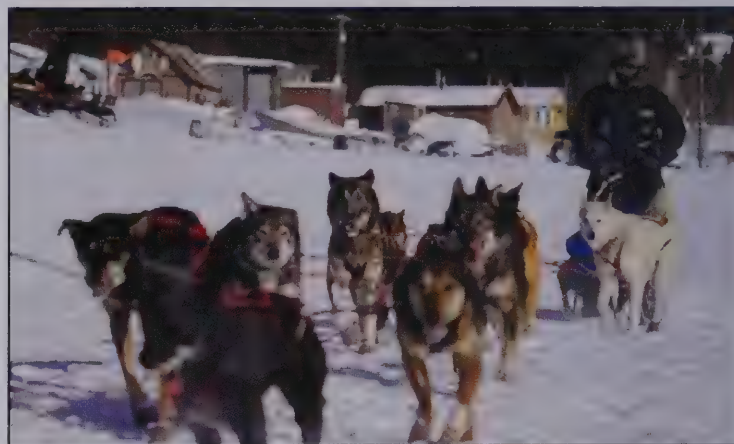


PHOTO BY AL GRILLO, AP

Iditarod champion Lance Mackey drives his team into the White Mountain, Alaska, checkpoint on March 17, the day before winning. What makes these animal athletes “insulin-sensitive?” Researchers are investigating.

Davis’ research has drawn the attention of at least one animal rights group that opposes experimentation.

“Ideally, Mr. Davis would work with human athletes and human cells, for direct relevance to our own species,” says Kathy Guillermo of People for the Ethical Treatment of Animals.

Davis counters that dogs share more DNA with humans than other, smaller mammals such as rats and mice. “There is a greater likelihood that something you discover in dogs will be directly relevant to humans,” he says. □

Geographical Dinner Honors Adm. Robert Peary

by Gardner A. Cadwalader (gardnercad@verizon.net)

On April 6, 2009, the Geographical Society of Philadelphia re-created a dinner in the same Rose Garden Room of the same grand Bellevue Hotel that had been held 100 years earlier in 1909 to celebrate Admiral Robert E. Peary’s accomplishment of reaching the North Pole in 1908. Numerous descendants of those who celebrated at the first dinner attended; some of those families had been sponsors of the Peary expedition.

The earlier dinner highlighted a presentation of Adm. Peary being awarded a specially struck bronze medal from the Society. That was reenacted by Ted Burkett playing his counterpart President of the Geographical Society from 100 years ago and Robert Peck, the Senior Fellow of the Academy of Natural Sciences in Philadelphia and a world explorer himself, playing Admiral

Peary. Peary had never been so loquacious or as delightfully humorous. Also, Michael F. Robinson, the author of “The Coldest Crucible, Arctic Exploration and American Culture,” spoke of “Arctic fever” and compared the importance of and excitement of Arctic exploration in Peary’s time to the excitement that space exploration has for us today.

The evening was a link in the chain of Philadelphia families with long connections to polar regions. My father, Captain John Cadwalader, had been deeply involved with the IGY early years in the 1950’s in the Antarctic, and in the fascinating Navy/CIA missions in the 1960’s to learn what the Soviets were hearing listening to our nuclear submarines under the Arctic polar ice. He used the Fulton Skyhook, written about in “Project Coldfeet” to retrieve our spies off the abandoned

Soviet drift stations as the ice broke up. I worked one summer in Barrow at ARL, doing nothing so sophisticated, but learning much about the north-slope and residents of the local villages.

Dinner recreated the meal 100 years ago with delicious favorites such as planked salmon and baked Alaska. Cracked and clear shards, imitating ice just fallen off an ice shelf or a glacier, were strewn on the dinner tables. I wore shoulder patches from the Arctic Research Laboratory and Operation Deep Freeze from my father’s Navy career; my sister wore a very warm native parka from Barrow. We all left the dinner thinking of polar regions, of the bravery of Admiral Peary (and that of his rival Frederick Cook, too) and of explorers today designing their craft for even colder exploration in space. □

Species Act Won't Be Used to Force Lower Emissions

Washington Post, 9 May 2009, by David A. Fahrenthold—The federal bureaucracy that safeguards endangered species isn't equipped to tackle climate change, Interior Department officials said yesterday—declining to protect Alaskan polar bears by cracking down on polluters in the Lower 48.

The decision, announced yesterday by Interior Secretary Ken Salazar, was the Obama administration's first word on an emerging environmental question.

The 35-year-old Endangered Species Act was designed to save animals from close-by threats such as hunting, trapping and logging. But, now that U.S. species from mountainsides to tropical seas are threatened by climate change, can it be used to fight a global problem?

Salazar, upholding a decision made in the last months of the Bush administration, said no.

"The Endangered Species Act is not the appropriate tool for us to deal with what is a global issue," Salazar said in a conference call with reporters. Instead, he said, the administration will push Congress to enact legislation setting national caps on greenhouse gases.

Polar bears were listed as threatened last year, the first time any species had been given protection primarily because of climate change. Scientists say that warming temperatures erode the bears' sea-ice habitat. If current trends continue, three of the world's four major populations may be extinct by 2075.

Environmental groups said this ought to trigger federal action against the source of the problem, greenhouse-gas emissions.

But yesterday, federal officials said that was impractical. They said the law requires a causal connection between a particular polar bear and a particular polluter's emissions—an impossible task, they said, given that greenhouse gases come from factories, power plants and automobiles, many of them thousands of miles away.

"We have to have the smoking gun and the dead animal," said Valerie Fellows, a spokeswoman for the U.S. Fish and Wildlife Service.

In this case, Fellows said, agency scientists cannot prove that sort of link: "You can't link the power plant in Florida with a dead bear in Alaska." Officials from several industry associations used this same logic yesterday in

applauding the decision.

Fish and Wildlife Service officials said they will still protect the bear from threats closer to home, such as hunting and oil and gas exploration in Alaska. They added that, for procedural reasons, rejecting the Bush administration rule would not have immediately changed the rules that apply to polar bears anyway.

But the decision could still set an important precedent, as legislation to cap greenhouse-gas emissions is still a long way from passage, and a number of other animals with climate-related problems are already on the federal docket.

The Fish and Wildlife Service is already pondering how to help two Caribbean corals dying in a warmer ocean—and this week it agreed to consider the possibility of protecting the American pika, a mountain mammal that can't live above 77.9 degrees.

"If we were in a situation where we already had very, very strong climate legislation," the polar bear decision would be less important, said Melanie Duchin, a Greenpeace "campaigner" in Anchorage, Alaska. "Right now, it's a vacuum." □

Stronger Hulls Could Help Fill Icebreaker Gap

Navy Times, 22 February 2009, by Amy McCullough—The new waterways not only open the debate on sovereignty issues, but also create more risks and responsibilities for a barebones crew of Coasties stationed in Alaska.

As America redefines its Arctic presence, the Coast Guard is looking at ways to modify existing assets to accomplish a rapidly growing mission.

One idea being considered is putting ice-strengthened hulls on six to eight of its offshore patrol cutters, the first of which are expected to enter the fleet in fiscal 2015.

The reinforced cutters would be used for missions similar to those of the service's polar icebreakers, except the patrols would be shorter and the hulls would not be designed to push through 25 feet of ice, as the icebreakers do now, said Rear Adm. Arthur Brooks, commander of the Coast Guard's 17th District, which covers Alaska and the North Pacific.

While the service conducts surveys on the benefits of placing ice-strengthened hulls on offshore patrol cutters, the idea of putting a similar hull on some of the new Sentinel-class fast response cutters "definitely is not off the table," said Rear Adm. Gary Blore, the service's chief of acquisitions.

The Coast Guard expects to send out a request for proposal for the OPC fleet this sum-

mer, and Blore said it is possible the requirements outlined in that request will include the ice-strengthened hulls.

Blore said it would cost \$700 million to \$1 billion to build a new icebreaker and the ship would take about 10 years to complete. An early draft of the stimulus bill included \$87.5 million for icebreakers, but Congress chopped the proposal before passing the bill.

"A polar icebreaker is not as complex as an aircraft carrier, but it's unique. We have not built one in the United States for 30 years, so we would be going back to the drawing boards," Brooks said. "It would take a substantial investment to bring a shipyard and people up to speed to build these ships."

The firm fixed-price contract for the FRCs includes six option periods which, if exercised, would add up to 34 new cutters at a total cost of \$1.5 billion. Blore said it is possible the ice-strengthened hulls could be added during one of the six option periods.

"The ice-strengthened ships should be cheaper and shorter, but we don't know what the timeline would be. The open question is whether the U.S. decides to build at all," Brooks said.

Blore said the removal of icebreaker money from the stimulus package doesn't mean there is no support for the Arctic.

"I'm sure Congress had a lot of other con-

siderations to make as to how quickly people could be employed and how quickly the money could be spent," he said. "I'm not surprised they are asking that the money not be spent on a new icebreaker."

He said the real test will come once the Coast Guard submits its own funding requests.

The National Oceanic and Atmospheric Administration released a report the end of January that said the Coast Guard is not prepared to respond to maritime accidents in the Arctic, saying infrastructure was limited and more needs to be done "to enhance emergency response capacity as Arctic sea ice declines and ship traffic in the region increase."

Brooks said that he agrees with the report, and that Alaska crews already pull people and assets from elsewhere in the Coast Guard during the busy summer months. And the summer season is getting longer, Brooks said, putting additional strain on the crew and fleet.

"The problem I see is that changes have already occurred, effects are already being felt, and we have to move to provide essential government services in a public domain," Brooks said. "We just had another cruise ship run aground in Antarctica. That's the third ship in two years in Antarctica, and unless I get up there and get in position, I'm not ready." □

That's Some Letter Opener You've Got There!

by Moki Kokoris

It is said that Herman Melville, American novelist, poet, and author of *Moby-Dick*, humorously classified the narwhal's tusk as a letter opener. This conspicuous incisor tooth has been called many things: a fang, a horn, a lance, a swizzle-stick, and even a dowsing rod for fertile females. And it is this solitary tooth, when seen separate from the body of its elusive cetacean bearer, that inspired the creation of legends such as those of the unicorn, and still continues to mystify the imagination.

The word "narwhal" is a derivation of an Old Norse word that means "corpse man" (nahvalr), which refers to the animal's greyish, mottled pigmentation, with discolorations resembling livor mortis like that of a drowned sailor. This name is further supported by the fact that the narwhal whale can lie belly-up for several minutes without much movement. The scientific name, *Monodon monoceros*, is derived from the Greek: "one-tooth one-horn". The Inuit name, qilalugaq qernartaq, translates to: "the one that points to the sky", describing the narwhal's unique behavior of pointing the tusk straight upward out of the water.

Much about this creature remains unknown, and because it is difficult to study in its dark, extreme arctic natural environment, misconceptions about it prevail. Jules Verne, in his book "20,000 Leagues Under the Sea," unfoundedly described the animal as a slaughterer of other whales, and said it even attacked boats with its "ivory sword".

Historians believe that the Vikings brought narwhal tusks back from their sea journeys, and that traders peddled the tusks as unicorn horns, an antidote to poison. Because no one had ever seen a unicorn except in illustrations, wealthy citizens fell for the ploy. Since it is mentioned in the Bible, to question the unicorn's existence



"Tusking" narwhal

was considered heresy, thereby perpetuating the elaborate medieval bestiary myths of single-horned, cloven-hoofed horses and virgin maidens. In his notebook, Leonardo da Vinci wrote: "The unicorn, through its intemperance and not knowing how to control itself, for the love it bears to fair maidens, forgets its ferocity and wildness; and laying aside all fear it will go up to a seated damsel and go to sleep in her lap, and thus the hunters take it."

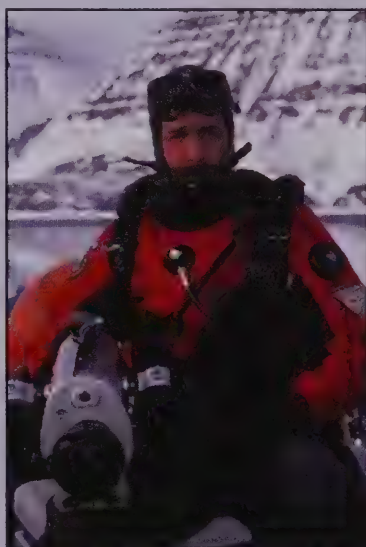
In a perhaps insensitive-to-mythology effort to dispel some of these erroneous and fantastic tales, scientifically based data about these creatures as it is being collected, is beginning to reveal some fascinating facts. Starting with the basics, the narwhal is an active marine mammal of the whale family, found primarily in the Atlantic region of the Arctic Ocean, rarely south of 65°N latitude. Highest concentrations inhabit the Canadian Arctic, Baffin Bay,

Davis Strait and northern Hudson Bay, but some groups have been seen in the Greenland Sea, extending to Svalbard and even as far as Severnaya Zemlya off the coast of Russia.

Inuit people hunt the narwhal for their long tusks, and dine on the top layer of skin and blubber, called muktuk or maktaaq, for vitamin-C, a scarce commodity in the Arctic. Indigenous tribes use the tusks as sled-runners, tent poles and harpoons. The narwhal's meat feeds sled dogs and is often frozen as winter rations. Eating these marine mammals, however, has unfortunately become dangerous for the Inuit peoples because levels of PCBs and mercury in animals around the northern ice cap have been found to be very high. The whale's diet is primarily cod and halibut, and also includes squid and shrimp, but it is not known for certain when and how they feed.

As mentioned earlier, the pelt color of the adult narwhal is mostly mottled grey and white. Infant narwhal are solid grey or greyish brown, while old individuals can be almost white.

However, it is its distinctive tusk that is this creature's most incredible feature, and many details about it are still unknown. Typically, it is the male narwhal that possesses the impressive two to three meter incisor tooth, which grows from the left side of the upper jaw directly through the upper lip. It is always a left-handed corkscrew helix, yet tusk length, girth, morphology, wear and coloration vary depending on the individual whale and its age. The corresponding right tooth remains embedded in the skull and measures roughly one third of a meter long. Occasionally, the



Cinematographer Adam Ravetch in the Arctic (© ADAM RAVETCH)

PHOTO BY GLENN WILLIAMS, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

right tooth grows into a tusk, but instead of developing symmetrically, it, too, spirals to the left.

Male tusks have a wide variation in ridge structure, often appearing wavelike when viewed in profile, characteristics that promote algae growth, which often makes them look green. Although only 15% of females develop tusks, theirs are shorter, straighter, and smoother, and as a result, collect less algae on the surface, thus appearing whiter. The tusks are flexible, able to bend about a foot in any direction without breaking. They can grow to more than three meters, which is rather remarkable considering that the male's body length is approximately five meters at maturity.

Despite, or perhaps because of their diet and habitat, narwhal can live to be more than 100 years old. To protect themselves from the extreme frigid waters, the narwhal's body fat content, like that of belugas and bowhead whales, is about 50%. They possess collapsible rib cages which allow them to dive as far



Dr. Martin Nweeia examines narwhal tusk morphology, asymmetry and form at the Zoological Museum, University of Copenhagen in 2005.

particular, Adam Ravetch – an award-winning cinematographer with a speciality in underwater photography – is taking this task to an extreme in his latest endeavors. During a “by

invitation only” lecture at the Explorers Club in New York City in March 2009, Ravetch presented some of his initial narwhal footage. It is filming at its finest and most engaging because not only can we see these animals from above the surface, but Mr. Ravetch also swims alongside them, sometimes beneath the ice itself.

Ravetch and his wife, Sarah Robertson-

Ravetch, are the co-directors of the film “Arctic Tale”, which is a theatrical wildlife epic that represents more than a decade of the couple's work in the Arctic. Adam Ravetch's incredible sequence of a starving polar bear attacking a walrus herd can also be seen in the DisneyNature/BBC production “Earth”.

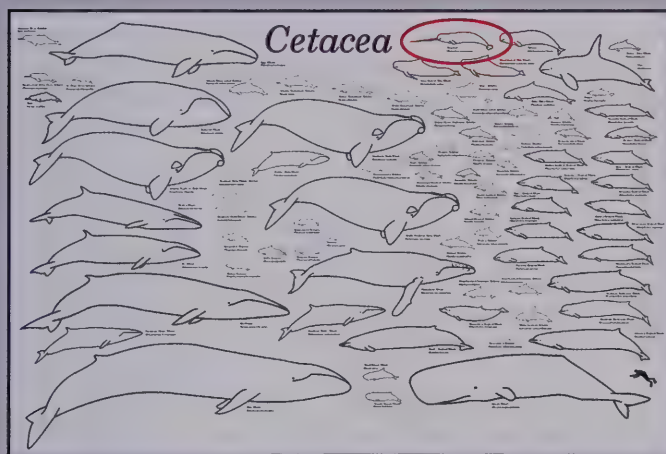
In development, and currently seeking further sponsorships, is Ravetch's “Extreme Beings” project. This will be a collaborative effort of Arctic Bear Productions and The Arctic Exploration Fund, the latter being a public nonprofit organization created and dedicated to capturing new behaviors on film as the Arctic's top marine predators adapt to a new and warming environment.

As stated on its website: “Sometimes accompanying cutting-edge Arctic scientists, and sometimes acting independently, Arctic Exploration Fund will take calculated risks

to photographically pursue the most fascinating mysteries left in the North in one of the most hostile regions on Earth. In doing so, AEF will produce documents that will be accessible to the public (via television, internet, lectures, and big screen presentations), lend insight to compelling scientific questions, and create a photographic time capsule that compiles the amazing adaptations and drama of animals reacting to an era of climate change for generations to view.”

Indeed this is a very relevant undertaking. Taking into account how tightly the narwhal is wedded to its pack ice environment, even minimal changes in sea ice can have a huge impact on its migration patterns and survival. One scientist labeled the narwhal “the marine mammal least likely to survive melting ice floes.” The more we learn about them, the better we will be able to understand these enigmatic unicorns of the Arctic.

But... the next time you are sitting in the dentist's chair, feel fortunate that you have no teeth that are 9 or 10 feet long. In this case, yes, size definitely matters! □

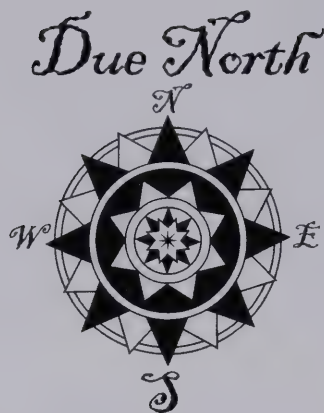


as 1,800 meters (more than a mile deep), and according to a recent study, they swim upside down much of the time at those depths.

Harvard School of Dental Medicine researcher, Dr. Martin Nweeia, who is the principal investigator and founder of the Narwhal Tooth Expeditions and Research Investigation, reports that the tusk has hydrodynamic-sensing capabilities and acts as a sensor. Nweeia's team postulates that the narwhal tusk acts as a membrane with an extremely sensitive surface, with 10 million nerve connections from its core to the outer surface, enabling the animal to detect changes in water temperature, pressure, and salinity. It may even be able to determine barometric pressure when it is above the water's surface.

All of these aspects and questions make this creature of the Far North a worthy subject for further study. One explorer in par-





by Arctic Editors
Herbert R. Drury and Moki Kokoris

Sources of Polar Information Proliferate

HERB: By the time you read this, I will probably have had the pleasure of finally meeting my co-Arctic editor and colleague Moki Kokoris, along with our managing editor Capt. Cliff Bekkedahl at a long-awaited “staff meeting” in New London, Connecticut. So this column has had to be submitted before leaving for New England in June in order to meet publishing deadlines. We were advised to reduce our output for this issue to reserve more space for “new additions” elsewhere in these pages. So I can only give a brief overview of the multitude of items coming to my attention since last December. One of the things we are asked to do is to introduce our readers to some of the many sources of information on polar subjects. There is such an abundance of available material and producers in this modern age that I can enumerate but a few. Many include items on both polar regions, while others are more specialized in subject matter such as mountains, oceans, atmosphere, space, animal, vegetable, mineral and political.

Aside from the usual newspapers and magazines like *National Geographic*, *National Audubon* and numerous others that we all know, there are now innumerable web sites available on the Internet which may be less well known as yet. One that almost daily has some current news on the Arctic—and often on the Antarctic as well—is “Terra Daily,” a free source to which anyone can subscribe. Along with that come a host of others that have po-

lar news from time to time, and several of those are also free to the public. Just a few that pop up on my computer screen periodically are various “daily” listings on a variety of subjects. These include Russo Daily, Sino Daily, Indo Daily. There are also “dailies” on energy, space, war, ice, seeds, GPS. and numerous others; whatever your interest. As a novice on the use of the World Wide Web, I am just beginning to discover how much material is out there for all of us, at little or no cost. Most people probably are already more familiar than I with the various search engines such as Google, Yahoo and others. So a lot of what I uncover almost daily about the polar regions, and the Arctic in particular, is available to everyone.

Since people may not have time to keep searching the continually growing number of sources for their Arctic ‘fix,’ we try to do at least some of that for our readers. Just look at any issue of this fine journal, whose 75th anniversary is coming up soon, and you will see the many news clips, stories, articles and items of interest that we publish for our polar aficionados.

So herein follows a very small sample of the kind of information that I have encountered since our last issue. Much of it I have accumulated in a file folder over a half-inch thick just of news reports copied from the Web. There is much more ‘stuff’ out there, and some of it may appear elsewhere in these pages. Unfortunately space will not allow me to give details, but you should get the idea, I think.

I am seeing more ads and articles against the big new, proposed “Pebble (Gold) Mine” in southwestern Alaska, right in the area near Lake Illiamna and Lower Talarik Creek that I luckily got to fish in late 1986. There may be some folks in favor of that contentious development, but I’ve yet to see any, and have not heard what the governor has to say about it so far.

Another item I found concerned a new “ocean” or “wave treader” (like treading water to stay afloat) being developed to harvest marine energy. Almost any such topic has relevance to the Arctic or polar regions because of all the sea water in those areas. There are meetings being held lately involving the world’s oceans and their ef-

fects on climate and global warming, perhaps the greatest concern of international interest these days.

One more source of information on the earth, as well as outer space, of course, is NASA’s *Earth Observation* magazine and other publications that are available to the public. They often include views of polar sites and other earth locations of interest to our readers. This is just one of numerous government or other agency resources that I have yet to investigate. There is so much available that one can hardly examine it all!

In the interest of conserving editorial real estate, I will offer a minimal list of recent items of interest. For instance, there are meetings or conferences happening almost daily, or scheduled for the near future, on many different topics, a lot of which have bearing on global warming and climate issues, either directly or indirectly affecting the polar regions relative to politics, air, land, water or living beings. An important one in Copenhagen, Denmark is slated for late this year, and several preliminary ones are working upon

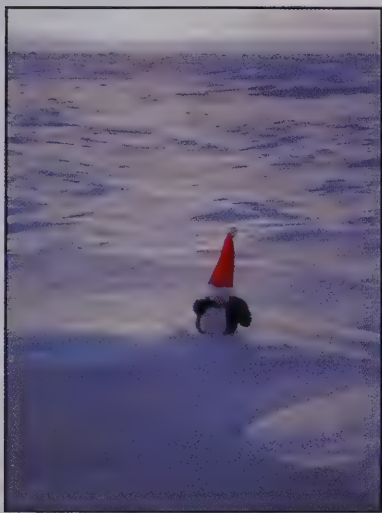
*Astronomical variations
in the Earth’s orbit,
sunspots, auroras, the
ozone hole, greenhouse
gases, energy sources, ice
thickness, ice cores ... are
all going on right now.*

selected aspects of these issues all over the world in: Paris, Kyoto, Seoul, Prague, Rome, Vancouver, Portland, Ore., and Manado in Indonesia, among others. Some are considering such

things as whales, so they are of interest to polar regions. Ocean currents, melting glaciers, animal and plant migrations and survival, including certain people, islands, or cities, are all of polar concern one way or another.

Astronomical variations in the Earth’s orbit, sunspots, auroras, the ozone hole, greenhouse gases, energy sources, ice thickness, ice cores, sediment cores from major (including Arctic) river deltas, as well as tree ring and chemical studies are all going on right now in both high and low latitudes because we now know they all relate to world climate and global warming. New publications appear almost daily, some of which we review for you, that confirm the complicated, multiple causes for still largely unpredictable planetary weather, the full effect of which we are only now beginning to realize! And the political ramifications of all this are causing worldwide concern, especially among nations bordering the Arctic. Stay tuned! □

A Penguin at Which Pole?



Moki: At the risk of putting myself in contention for the Certificate of Redundancy Certificate, I will tangentially revisit a personal experience already mentioned in a previous issue. The moral of this story, however, is different, so bear with me.

It was in April 2003 that I endeavored to realize my childhood dream of one day standing at the apex of our planet. So, I set out with my compass pointing due North. On the presumption that I would attain my goal, in my expedition duffel, I carried a few special items, some my own, others belonging to friends. These objects were along for the ride to be “polarized” at the geographic North Pole and returned to their owners having been zapped by the zenith gods.

To satisfy my own inclination for either finding humor in most things or creating it when necessary, I brought with me a small fuzzy toy penguin, no more than four inches tall, replete with his very own Santa hat. I checked my GPS, making certain that the drifting ice had not taken me too far off the 90°N axis point, I placed my penguin on the snow and took his photo for posterity as he obediently sat staring back into my lens. I never bothered contacting Guinness World Records, but perhaps I should have. This was, after all, the first penguin ever to have been spotted at the North Pole! But who knew how important that penguin would become thereafter?

Soon after my return, calls started coming in from schools inviting me to give presentations to the students. Not only were the

children fascinated by my Arctic exploits, but when I talked about polar explorers, polar scientists, native Arctic peoples and their cultures, polar animals and their habitat, I realized that I had a captive yet insatiable audience. Ah yes, such impressionable and malleable young minds.... I was not only their teacher; I was a role model. Now *that* distinction carries with it a lot of obligation. It is the explorers of the present day, the driven individuals who are my peers, whose footsteps today’s youth should be following. But, if I am a mentor to these schoolchildren, who then is mine?

In my own objectives, I strive to emulate people like Pen Hadow who set out this past spring on a scientific expedition to the North Pole to measure the thickness of the remaining permanent Arctic Ocean sea ice, or James Balog whose dozens of Extreme Ice Survey cameras are taking time-lapse photos of glacier retreat across the globe. It is also the human interest stories that inspire me with their resolve and perseverance: warriors like Jerri Nielsen, the doctor who bravely treated herself for cancer during a South Pole winter-over (yet recently lost her battle with the disease), and especially ordinary-turned-extraordinary pioneering citizens like Barbara Hillary from Harlem who was the first African-American woman to the reach the North Pole, at the age of 75!

While it is imperative to record, respect and honor polar history and its valuable contributions and achievements, it is even more important to turn our focus toward the future and to topics more relevant to current times. Therein lie new realms, new discoveries, new sciences and fields of study that are now only in their infancy. The key, however, is in educating the public, which is why family-oriented events like the New York City International Polar Weekend are so important.

This past February, with special participation from the Norwegian Consulate, and supported by the National Science Foundation, the American Museum of Natural History hosted a two-day event to celebrate the wrap-up of International Polar Year 2007-2008, and review its accomplishments. Among the numerous organizations joining this event were Ice People, Wings WorldQuest, Polar Palooza, and institutions such as the Peary-MacMillan Arctic Museum and the Norwegian Space Center.

This Polar Weekend featured lectures, Arctic indigenous cultural performances, as well as films and multi-media presentations, which showcased polar scientists and their research. Adjunct to these was a “polar fair” where visitors could walk through an authentic lavvu – a temporary Saami dwelling – or study arctic moulin sculptures or even test their core-drilling skills on large blocks of ice. More in-depth programs included honoring the 100 year anniversary of the Peary-Henson expedition to the North Pole, discussions about climate change and the melting Arctic ice sheets, and lectures about some of the more cutting-edge discoveries made during this IPY. Of special interest was a dramatic presentation by Angaangaq, a Greenland Inuit shaman, who with his native song and storytelling about local lore, myth, and the Fire and Ice Ceremony to be held in Greenland this July, moved many of his listeners to tears.

It is evident that by offering opportunities such as these to wider audiences, polar adventurers, explorers and scientists of today have the power to stimulate curiosity and inspire hunger for learning. But, how many of these instructors do their teaching with the assistance

of an Arctic penguin? (she boasts as she types) Before I reveal the correct answer to my students, the age-old “why don’t polar bears eat penguins?” question

The age-old “why don’t polar bears eat penguins?” question yields some very inventive theories...

yields some very inventive theories.

These are indeed exciting times in which there is much potential. As members of a notable group of compatriots of both polar orientations, we have a duty to fulfill. It is a responsibility I personally take very seriously. As is the goal of my own educational program, our collective mission should be to capture the imagination of young people today and turn them on to the many fascinating polar fields of study. Objective: Engage, Educate; Inspire, Motivate. And if a photograph and accompanying story about the honorable first penguin at the North Pole helps, why not use a little humor to get the point across? Strange that a penguin could act as an Arctic mascot, is it not?

Neil Armstrong said: “One small step for (a) man; One giant leap for mankind.”

Although not nearly as poetic, Moki Kokoris says: “One small penguin in a classroom; One giant message for students.” □

BOOK REVIEWS

Two Arctic Survival Epics Rescued from Obscurity

In the Land of White Death: An Epic Story of Survival in the Siberian Arctic

by Valerian Albanov

(2001). New York NY: Random House, Modern Library Paperback Edition, xlii + 244 pp. Introduction to Modern Library Series and Preface by Jon Krakauer; Introduction and Epilogue to the Modern Library Paperback Edition by David Roberts; maps, illustrations, Index. ISBN: 0-679-78361-X.

Four Against the Arctic: Shipwrecked for Six Years at the Top of the World

by David Roberts

(2003). New York NY: Simon & Schuster, 304 pp. Prologue, Epilogue, maps, illustrations, Index.

Both reviewed by Dave Norton

These two books treat extreme cases of unplanned overwinter survival by non-indigenous venturers to the Arctic. Each brings an extraordinary feat of endurance and resourcefulness out of the shadows of hearsay and archival mazes. As published and partially re-published accounts, the two were catalyzed by a single scholar's efforts. As such, they are linked, despite their treatment of events nearly two centuries apart.

This double review is warranted by the extraordinary insights and contrasts the two books offer. Indeed, like twin stars, they are vastly more instructive in combination, than if discussed separately.

David Roberts is the catalyst common to both books. His fields of interest and published accounts have diversified from his background in mountaineering. By his own admission (*Land of White Death*: pp. xx and 144; *Four Against the Arctic*: pp 8-12) Roberts accidentally discovered the Albanov diary from the early 1900s through a French colleague. Then, while preparing the Albanov diary for re-publication in English, Roberts fell under the spell of Albanov's fleeting reference to survival by four Russian Pomori sailors and hunters shipwrecked in 1743, who subsisted year round on a tiny islet off Edgeøya in the eastern Svalbard Archipelago until rescued by a passing ship in 1749.

Albanov's re-published journal, especially in this 2001 paperback edition, is a genuine spellbinder written by the unpretentious leader of dissenting crew members. They grew impatient to regain mainland Russia after their ship, the *Saint Anna* of Murmansk, became icebound in 1912. In April 1914, after enduring two winters drifting poleward aboard the icebound ship, the diarist leads 13 mutineers onto the sea ice, leaving behind an equal number of crew who elect to remain shipboard at about 83° N (Fig. 1), northwest of the Franz Josef Land Archipelago. Albanov's tactics are to traverse sea ice by sledge, and open leads by kayak to reach Fridtjof Nansen's camp at Cape Flora on one of the southernmost

islands in the archipelago. There they hope to reenact Nansen's 1896 rescue by a passing ship. Resolve among Albanov and his companions is tested by relentless miseries of illness, short rations, weather setbacks, failure of gear, and being deserted and robbed by several survivors from within the body of mutineers as they near land. Yet Albanov and one other man ultimately survive the agonizing trek, and are picked up by a Russian ship in the late summer of 1914. What might have been a triumphal (or at least widely heralded) return is denied Albanov's homecoming to Archangel'sk and St. Petersburg. Civil chaos early in World War I has engulfed even this subarctic margin of Europe (p. 188).

Until readers discern the other book's central thrust, *Four Against the Arctic* is bewildering. Its title does not prepare us for Roberts' emphasis on his own steps (including failures) in adventuresome quests to verify, document, and suggest plausible details to ordeals endured by unlettered 18th century Russian sailors. At first, Roberts was skeptical: was the tale of four Pomori from Mezen' (Fig. 1) mentioned in Albanov's journal anything more than undocumented folklore?

Once again, European scholars led Roberts to brief 18th century chronicles published in French and German. The Pomori's long confinement to a small Arctic island proved to be undeniably real and horrific, but that original reality had been strained (in both senses of 'strained') by the time Roberts undertook his probes into the story. Strains included 18th century chroniclers and translators handicapped by unfamiliarity with the Arctic (Prof. William Barr, 2009, pers. comm.), the passage of time, condescending attitudes of scholars toward rural Russian culture, and modern Russians' reluctance to get excited by earlier Russians' overcoming hardships rivaling their own (p. 22). What remained of the original story some 250 years later was thin soup. Roberts methodically brings to life the sketchy understanding of how four stranded Pomori survived six Edgeøya winters. Few authors could have set those 18th century adversities in historical context as well as he does. Roberts admires the resourcefulness shown by the Pomor castaways before the onset of their first winter. They fashioned spears from driftwood and iron bolts found on their island, killed a polar bear with those spears, then fashioned bows and arrows, using the tendons of that first polar bear kill for bowstrings. Thus armed, the men harvested reindeer for food. Equally elegant ingenuity provided the four men with reliable fire for warmth, adequate shelter, and even antiscorbutic plants from the scarce vegetative resources on their rocky and gravelly islet off Edgeøya.

The 2001 paperback edition of *In the Land of White Death* happened to be the book I read immediately after I finished Roberts' 2003 book. Otherwise the intimate connections between these two might not have been



Fig. 1. Location map for places cited in *Four Against the Arctic* and *In the Land of White Death*. Star indicates the icebound *St. Anna* when Albanov left her to sledge and kayak to Cape Flora in the Franz Josef Land archipelago in 1914 (dotted line). Map by D. Norton, based on Google Earth, Satellite imagery.

leagues and archivists. His book's title also could have reflected how much of it dealt with Roberts' own efforts to verify the 250-year old story. On the other hand, Roberts is refreshingly candid about those efforts, replete with frustrations and unplanned good or bad luck. That candor makes me suspect that the publisher had more to do with titling, packaging and releasing this book than did the author. □ Literature cited: Loomis C. 2001. *In the Land of White Death* (2000). Reviewed in *Arctic* 54 (2): 190-192. □

Elnguq: An Eskimo Girl's Childhood in the Alaska Wilderness

By Anna Jacobson

P.O.Box 221974 Anchorage Alaska 99522-1974
books@publicationconsultant.com

Reviewed by Cliff Bekkedahl

Here is a delightful book for the pre-teen girl in your family or for the school library that you support. Presented as a novel this is a story of the rhythmic lifestyle of the Yup'ik peoples of southwestern Alaska as seen through the eyes of a young girl first, becoming aware of her surroundings and then a learning participant as a hunter-gatherer.

It tells of a life regulated by the seasons, promising Springs, short but fulfilling Summers, and the urgencies of Fall in preparation for the harsh and unforgiving Winters. The family unit is vital to survival with the father

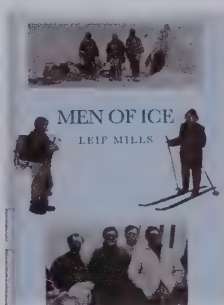
responsible for hunting for meat and pelts, for directing their nomadic journeys to the right locations for fishing and gathering of vegetation while the mother nurtures the young, clothes and feeds the family and tends to the frequent visitors and relatives that pass their way the year around.

Our heroine, Enluq, is a cheerful observer and eager pupil joining her father as he sets snares and traps and dresses the thousand pound moose he has brought down with two rounds from his precious rifle. She fishes and gathers berries with her mother and sisters and learns to sew the clothing of animal skins that ensure their survival in the bitter and unrelenting cold of winter.

Called a novel, this is really a narrative of life in the Alaskan wilds that is slowly coming to an end as permanent settlements grow, Skidoos replace dog sleds, and the children are enrolled in schools to prepare them for something called modern life.

Your young reader may have some questions for you, Dad or Grandpa, about your ventures north and whether you had contact with these peoples or others like them. What better outcome could a book offer? Get a copy and stuff it in a stocking this Christmas. □

Men of Ice: The Lives of Alistair Forbes Mackay (1878-1914) and Cecil Henry Meares (1877-1937)



by Leif Mills Whitby: Caedmon of Whitby,
2008, 196pp. £20

Reviewed by Charles Lagerbom

About nine years ago, Leif Mills wrote the only biography of Frank Wild, right hand man to Sir Ernest Shackleton on his many Antarctic ventures. This time, the author has produced a dual biography of two men who became instrumental in their respective Antarctic expeditions but of whom little since has been written. In the mold of A.G.E. Jones' Polar Portraits and L.B. Quarterman's Antarctica's Forgotten Men, Mills has produced portraits of two members of Antarctic expeditions who played significant roles yet the names are not well remembered.

Alistair Forbes Mackay accompanied Shackleton on the NIMROD Expedition 1907-1909 and was one of the three man team to reach the Geomagnetic South Pole. Cecil Henry Meares was with Scott on his fateful TERRA NOVA Expedition and was in charge of the dog teams. Both men wrote no memoirs of their exploits, although Mackay kept a journal of his magnetic pole trek. Neither had children and Mackay remained unmarried. Neither returned to the Antarctic ever again, although Mackay joined the KARLUK Expedition with Captain Bob Bartlett and Vilhjalmur Stefansson to the Arctic, where he perished trying to get to land after the ship was crushed in ice.

In his Preface, Mills describes the challenge of finding information about these two individuals. Sir Ranulph wrote the Introduction, where he states that the two explorers deserve to have their stories told and their names remembered as participants in the Heroic Age of polar exploration. With 195 pages, twenty illustrations and

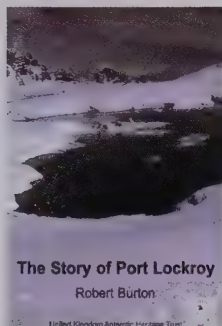
a glossary MEN OF ICE also has reference notes and expedition crew rosters. Leif Mills has produced a welcome addition of two more "forgotten" men in Antarctic literature.

The book can be obtained through its publisher: Caedmon of Whitby, 128 Uppgang Lane, Whitby, YO21 3JJ United Kingdom □

The Story of Port Lockroy

by Robert Burton

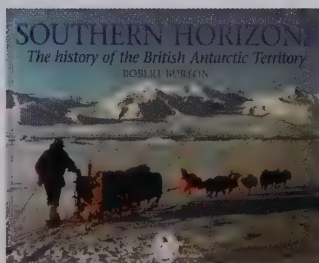
Cambridge: United Kingdom Antarctic
Heritage Trust, 2008, 19pp. Free with order from
Antarctic Heritage Trust
(<http://www.ukaht.org/Shop/Books.htm>) (



Southern Horizons: The History of the British Antarctic Territory.

by Robert Burton

Cambridge: United Kingdom Antarctic
Heritage Trust, 2008, 64pp; £12.



Reviewed by Charles H. Lagerbom

Robert Burton has written some very readable informational works on South Georgia (2005) and, along with Stephen Venables, about Sir Ernest Shackleton at South Georgia (2001). His new work is entitled The Story of Port Lockroy and tells the history of this small harbor found on Wiencke Island on the west side of the Antarctic Peninsula. Written for and published by the United Kingdom Antarctic Heritage Trust, this 20 page booklet is designed to draw attention to the plight of keeping historic sites and structures of Antarctica preserved. The result is a delightful time capsule of this particular historic and rather popular station.

After being discovered and named by French explorer Jean-Baptiste Charcot in 1904, the site was used as a temporary refuge for whalers from Antarctic storms and then regularly utilized as a source of freshwater for the boilers of offshore factory ships boiling down the whale meat to produce whale oil. The site was a regular stop until 1931 when it was last used by whalers. The anchorage has been used as a site for scientific research

by ships such as the Discovery and later Discovery II. It has been used as a site for aviation research as well when explorer Sir Hubert Wilkins made use of the bay in 1929 for some pioneering polar flights and John Rymill flew the de Havilland Fox Moth from there during the British Graham Land Expedition in January 1935. Permanent occupation of the site by the British began in February 1944 as part of Operation Tabarin when Base A was constructed amid concerns of German commerce raiders in the southern waters. Except for three winters, the base would be permanently manned until 1962. Operation Tabarin morphed into the Falkland Islands Dependencies Survey. Burton expertly covers the base's history of journeys, Royal visits, working cargo and general life at the station: from food to medical matters to radio contact to its famous post office. The booklet is well illustrated and a source of information on the base's scientific program and what has been the status of the base since its closure in 1962. Today it is a popular stop for visiting cruise ships and the buildings and post office are manned by summertime volunteers.

A more in-depth analysis of the entire British Antarctic Territory is the subject of Burton's other new publication entitled Southern Horizons: The history of the British Antarctic Territory. Again published by the United Kingdom Antarctic Heritage Trust, the book is designed to draw attention to helping preserve the heritage of Antarctica and contains a personal appeal from HRH The Princess Royal. With numerous illustrations and readable text, Burton presents a cogent overview of the history of the Antarctic Peninsula. Early explorers are followed by sealers as the economic potential of the region is realized, although shipwrecks and occupational hazards take their toll. The peninsula is well represented in the Heroic Age section of the book with the exploits of de Gerlache, Nordenskjöld, Bruce, Charcot and Filchner. Whalers appear as do early aviation pioneers such as Wilkins and Rymill. The science, politics and daily life also get a look. From whalers and sealers to pilots and women, Southern Horizons is a good way to learn about this particular corner of the Antarctic.

Both of these books are excellent overviews of their subjects, one a site history and one with a more regional approach. They are written by a polar expert and are part of an effort to help preserve important historic sites in the Antarctic. More information about the mission of the United Kingdom Antarctic Heritage Trust, as well as how to obtain these booklets, can be found at their website: (<http://www.ukaht.org/>). Well worth the price, these informative books are great additions to the history of the Antarctic Peninsula. □

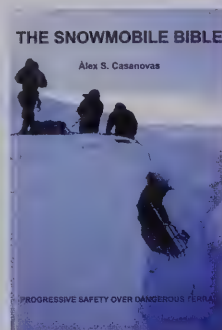
The Snowmobile Bible: Progressive Safety Over Dangerous Terrain

By Alex S. Casanovas;
trans. by Annette
McGaffney

Lulu.com, 2008, 109pp; €40.75)

Reviewed by Jeff Rubin

The cover photo of this well-illustrated technical manual vividly demonstrates its need: three parka-clad individuals stand and kneel at the edge of a crevasse in which a snowmobile dangles by a line.



Casanovas worked for six summer seasons as a senior mountain guide and logistics coordinator at the Spanish Antarctic station Juan Carlos I on Livingston Island in the South Shetlands, where 95% of field work is conducted using snowmobiles.

The knowledge he shares is hard-won, "scares and shocks included." Written for mountain guides and expert alpinists, this book emphasizes preparation, practice and revision as keys to safety. It includes detailed information on equipment, techniques and manoeuvres over glaciers, with sections on correctly harnessing and securing people, snowmobiles and sledges; crevasse extraction; and first aid. More than a dozen diagrams and 64 color photographs, many of them annotated, help clarify the text.

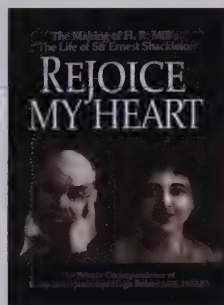
The author's pragmatic approach is seen in his unvarnished advice to guides, for example: "Sedentary academics can, and often do take part in lengthy expeditions in the field, and the wiser individuals are aware of their own limitations. But the age, health and physical capabilities of your clients have to be considered objectively by you in terms of their own well being and the safety of the convoy as a whole."

Casanovas' admirable goal is to "make available the techniques which at the present time I consider to be the most secure and reduce the relevant risk by the largest amount." While he acknowledges that information "can never guarantee total security," this book is an invaluable reference that is certain to be studied, debated and refined by its users on ice and snowfields around the world. □

Rejoice My Heart

By Emily Shackleton and
Hugh Robert Mill
(Adelphi Books, 2007,
142 pp, \$35)

Reviewed by
Jeff Rubin



This volume of correspondence from 1922-33 between polar historian Dr. Hugh Robert Mill and Lady Shackleton, widow of the Antarctic explorer, chronicles the making of Mill's biography *The Life of Sir Ernest Shackleton* beginning just months after Shackleton's death. But this book of letters is about much more than simply the mechanics of producing a book, for it reveals—as only private correspondence can—the personalities, thoughts and feelings of their authors.

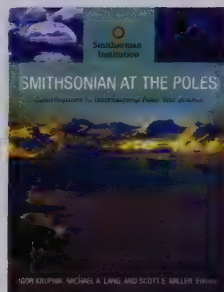
From his widow, we learn small details about Shackleton, his family and friends that add up to a fuller picture of the man who has already been written about extensively in books and articles. But we also, for the first time, glimpse Emily Shackleton as someone more than the woman who merely stayed at home, waiting. Most poignantly, she shared with Mill her anxieties concerning the financial fallout resulting from the *Quest* expedition, on which Shackleton died of a heart attack while his ship was alongside at Grytviken, South Georgia, leaving behind overdrafts and unpaid loans totalling many thousands of pounds.

An informative introduction by polar historian Tim Baughman places Mill in the context of the early 20th-century British exploring "establishment," and outlines the formation of his associations—and, in the case of Shackleton, true friendship—with the leading polar so-journers of his day. The final 13 pages comprise extracts from press reviews of Mill's biography of Shackleton, and they, too, make interesting reading.

Something of the difficulty of the task of transcribing the letters is diplomatically revealed by Michael Rosove in his Editor's Note. "Lady Shackleton's handwriting is far more difficult to decipher," he writes, "...it appears that she had the habit of setting the point of her pen on the paper as she was contemplating what next to write."

Half of the proceeds of the sales of this book will benefit the William Mills Library Acquisitions Fund of the Scott Polar Research Institute. □

Smithsonian at the Poles: Contributions to International Polar Year Science



Igor Krupnik, Michael A. Lang and
Scott E. Miller, eds.

(Smithsonian Institution Scholarly Press, 2009,
405 pp, free upon request)

Reviewed by John Splettstoesser

This proceedings volume of the Smithsonian at the Poles Symposium held on 3-4 May 2007 was published as part of the IPY. The 31 chapters are grouped into six themes comprising IPY Histories and Legacies; Cultural Studies; Systematics and Biology of Polar Organisms; Methods and Techniques of Under-Ice Research; Environmental Change and Polar Marine Ecosystems; and Polar Astronomy: Observational Cosmology. Authors are from a variety of U.S. and non-U.S. academic institutions, the Smithsonian Institution, research labs, and natives in Greenland and Nunavut. An objective of the Symposium was to increase understanding of how polar regions affect the habitability of our planet. With an 11-page index, the book is available free upon request by writing to Ms. Ginger Strader <straderg@si.edu> □

The Opening of a New Landscape: Columbia Glacier at Mid-Retreat



by W. Tad Pfeffer
(American Geophysical Union, 2007, 96 pp, \$70)

Reviewed by John Splettstoesser

The Columbia Glacier is one of the most intensively-studied glaciers in the world. Research initially was begun by fundamental scientific curiosity combined with a rapidly disintegrating terminus in Columbia Bay, Alaska, that could easily threaten tanker access to the southern terminus of the Trans-Alaska pipeline, 50km to the east in Valdez. Secondly, Columbia Glacier is the best possible place to understand the dynamics of glacier interaction with the ocean and how future sea level may change under its influence. This book has many attractions, aesthetically because of the spectacular black-and-photographs, scientifically as a glaciological phenomenon (perhaps a result of climate changes), and historically because of the long-term study of a glacier over many years prior to concerns about global warming and sea-level rise.

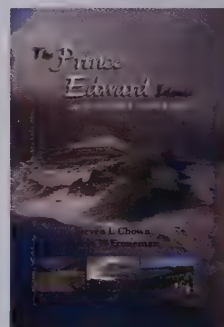
A glaciologist at the Institute of Arctic and Alpine Research and a professor at the University of Colorado at Boulder, the author has studied this glacier for about 12 years. Columbia is one of 54 glaciers in Alaska that terminate at the ocean, not floating, but with the outermost portion grounded on the seabed. As a tidewater glacier, it can advance over centuries, but retreat over decades, and exactly what the trigger is for that retreat is not well known. It is now in retreat, which means it maintains an advance mode but icebergs calve faster than its advance. Columbia's retreat began in the early 1980s following some 200 years of stability, and by 1999 progressed 15 km up the fjord, not by melt and wastage of the glacier terminus, but by rapid flow into the ocean accompanied by even more rapid iceberg calving. The relationship between the two is not well known and remains so to this day.

The author focuses not only on the state of Columbia Glacier, but also illustrates to future observers what this place looked like, considering that two different landscapes continue to evolve, one of the glacier itself, another the new landscape of soil and vegetation as the glacier retreats. I recommend the book to scholars of glaciers of the world, but also to those who look for attractive coffee-table books worth viewing for the photographs alone. □

The Prince Edward Islands

Edited by
Steven L. Chown and
Pierre W. Froneman
(Sun Press, 2008,
469pp, R300)

Reviewed by
Jeff Rubin



South Africa's only overseas possession, the remote Prince Edward Islands are located 2,000 km southeast of Cape Town, halfway to Antarctica in the middle of the Southern Ocean. The group consists of Marion Island (290 km²; highest point 1230m) and Prince Edward Island (45 km²), 22km to the northeast. Marion is still volcanically active, with occasional eruptions, the last of significance occurring in 1980. Like nearly all peri-Antarctic islands, the Prince Edwards support large numbers of breeding seabirds and seals, some of which are considered globally threatened, including 44% of the world's wandering albatrosses.

The islands are designated a Special Nature Reserve, South Africa's highest state of formal protection. Tourism is not permitted, and even scientific visits to relatively-pristine Prince Edward are restricted to one every two years, by a maximum of 10 people staying no more than 8 days. Despite this protection, the islands are being affected by human activity elsewhere in the world through global climate change. Long-term meteorological data collected at Marion shows that the island is becoming warmer and dryer, its central ice cap is disappearing, and its surrounding seas are also warming.

This volume is a review and synthesis of present knowledge about the islands, derived from an exceptionally-productive period of research from the 1960s to the present. It supercedes and supplements the landmark volume, edited by E.M. van Zinderen Bakker et al., produced by the South African Biological and Geological Expedition of 1965-66.

Twenty-four contributors cover the islands' oceanography, climate and climate change, geology, geomorphology, biology (marine and terrestrial), botany, conservation and management, and human history. Twelve

appendices covering 56 pages list all of the islands' species of diatoms, hepatics, mosses, vascular plants, lichens, freshwater and terrestrial invertebrates, marine plankton and benthos, fish, birds and mammals.

This reviewer is not qualified to judge the merits or deficiencies of most of the book's specialist chapters, but assuming they are up to the high standard of that covering human history by John Cooper, they are superior. Cooper writes at the outset that he is not attempting to present detailed accounts of each era. Rather, he has selected events that describe life and work on the islands at different periods. Interestingly, he has included two neglected topics: the early history of the introduction of alien mammals, and the influence on island life of South Africa's racial and gender policies from 1948 to 1994. Amazingly, the first two teams to live and work at South Africa's base on Marion Island included servants! This fascinating chapter is alone worth the price of the book.

With 18 pages of plates, some in color, the book is available online from www.sun-e-shop.co.za □

Miniature Messages: The Semiotics and Politics of Latin American Postage Stamps

By Jack Child
(Duke University
Press, 2008, 247
pp., \$23.95)

Reviewed by
John Spletts-
toesser



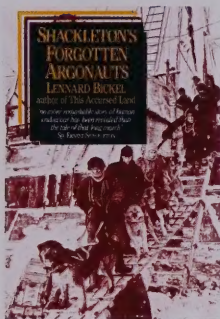
This remarkable book represents something different in the history, culture, and politics of Latin America, Antarctica, and the Falkland Islands/Islands Malvinas, portrayed entirely with the use of postage stamps and related semiotics, the study of signs and the messages they contain. A professor in the department of Language and Foreign Studies at American University, Child has written many books and articles on Latin American culture and geopolitics. He's also an avid stamp collector, combining history and political science with philatelic research of nearly 40,000 Latin American stamps. He studies how dictatorial regimes of Latin America reveal their events and history; this is particularly evident in the stamps issued by South American countries and British stamps in establishing claims in the Falklands/Malvinas and in Antarctica.

Argentina and Chile are the most prolific producers of Antarctic postage stamps, using them "to support their Antarctic claims, as well as to develop the 'Antarctic conscience' of their citizens, and to inform the rest of the world of their Antarctic presence." At least 20 more countries also issue Antarctic postage stamps, either related to their claimant areas or commemorative in various ways. The book explains the meaning of the stamps in 8 chapters, illustrating many on 16 colored plates. A CD-ROM containing images of the 519 annotated, indexed stamps mentioned in the book, plus 2,877 other stamps images, all copy-right-free is available to book purchasers at no charge as shareware from the author (tel 202-885-2385; jchild@american.edu), though a small donation would be appreciated.

I recommend this book for readers of Latin American politics and history, particularly for those interested in the conflict between Argentina and Britain over the Falklands/Malvinas as well as claimant issues in the Antarctic sector south of South America. □

Polar Classic

Shackleton's Forgotten Argonauts



by Lennard Bickel

Melbourne: The Macmillan Co. of Australia Pty Ltd,
1982.

Reviewed by Charles Lagerbom

When someone mentions a polar classic, the big names immediately come to mind. The personal accounts written by the main players of polar exploration such as Scott, Shackleton, Franklin, Hall, Mawson, Peary, Cook, Byrd, etc have all gripped readers and earned the sobriquet "classic."

Yet many of the polar books that I enjoyed while growing up included more recent treatments of those exploits written by more contemporary writers in gripping "cannot-put-down" styles. They were my introduction to these famous explorers and sometimes my first encounter with their incredible exploits.

These books also steered me to other accounts and sources as well as to the original personal writings of the participants. So while it is purely subjective, it is to those books that I also apply the term "classic." You can agree with me or not, but one thing remains true. They are a great read.

Such is the case with Lennard Bickel's *Shack-*

leton's Forgotten Argonauts, published in the early 1980s. Bickel was one of the first to focus exclusively on the Ross Sea Party of Shackleton's 1914-17 Trans-Antarctic Expedition. For years that story had been overshadowed by Shackleton's own exploits when his expedition ship *Endurance* was caught in the ice and crushed, forcing the crew to take to three small lifeboats. They made it to Elephant Island, from which Shackleton then made his heroic voyage on the *James Caird* to South Georgia for help.

The men assigned the Ross Sea sector to establish food and fuel caches along the Beardmore Glacier and Ross Ice Shelf had just as gripping a story to tell. Even Shackleton admitted that "no more remarkable story of human endeavour has been revealed," yet little was written of it. In his epic book *South*, Shackleton used five chapters to tell the story of the Ross Sea Party.

After its publication in 1929, participant Ernest Joyce's *The South Polar Trail* became the authoritative account for many years. Another party member, R.W. Richards, wrote an account entitled *The Ross Sea Shore Party 1914-17*, which came out in 1962. It was meant to offer its own view of the ordeal, somewhat different from Joyce.

So when Bickel wrote his book, very little had been done with the story on its own. If it was mentioned, it was usually as part of a Shackleton biography or a wrap-up chapter to the *Endurance*.

What makes Bickel's book great is that it grips the reader and holds him or her spellbound. This is accomplished not only due to the incredible events, but also to the author's narrative form. He also successfully pulled that off in his 1977 account of Mawson's solo ordeal, *This Accursed Land* (also known as *Mawson's Will*.)

Other books on the Ross Sea Party have since come out. These include Richard McElrea and David Harrowfield's *Polar Castaways* and Kelly Tyler-Lewis' *The Lost Men*. They are great sources of information, include even more recent analysis and newly-found sources, and are enjoyable reads.

But you always remember the first account with a special fondness—so I submit Lennard Bickel's *Shackleton's Forgotten Argonauts* as a polar "classic" and a great read. □

On the Web

The below is a collection of web site addresses mentioned in stories in this issue, as well links to other news of interest related to stories in *The Polar Times*. (Please note, some of the links are two lines long, so be sure to use the complete link.)

"Belgium Returns to Antarctica" (p. 4)

- www.antarcticstation.org

"Why Did Explorer Sink?" (p. 14)

- www.photobits.com/dl/Explorer%20-%20Final%20Report.PDF

"Antarctica Calling" (p. 15)

- www.antarctican.org

"Freeze Frame" (p. 15)

- www.freezeeframe.ac.uk

"That's Some Letter Opener" (p. 26)

- www.narwhal.org/
- www.arcticbearproductions.com

"Nunatsinniinnikuut?" (p. 22)

- www.isfa.org/arctic.htm

"Due North: Moki Kokoris" (p. 29)

- www.amnh.org/polar/
- www.extremeicesurvey.org/
- www.catlinarcticssurvey.com/
- <http://barbarahillary.com/>
- <http://fireandice2009.com/>
- www.icepeople.com/
- <http://passporttoknowledge.com/polar-palooza/>
- www.wingsworldquest.org/
- www.bowdoin.edu/arctic-museum/
- www.spacecentre.no/english

Obituaries

James F. Calvert



James F. Calvert

Vice Admiral James F. Calvert, skipper of the nuclear powered submarine *Skate*, the first ship to surface at the North Pole, and former Superintendent of the US Naval Academy at Annapolis, died June 3, 2009. He was 88. The cause was heart failure.

Vice Admiral Calvert was a highly decorated submariner who made nine war patrols against the Japanese from 1942-1945. He served on the *Jack* which ranked ninth in tonnage sunk among all American submarines during the war. As executive officer of the USS *Haddo*, he was present in Tokyo Bay on September 2, 1945 when the Japanese Emperor surrendered marking the end of World War II. He later recounted his wartime experiences in *Silent Running* (John Wiley & Sons, 1995).

After the war Calvert was selected by Admiral Hyman Rickover, the founder of the Navy's nuclear submarine program, to be the commanding officer of the *Skate*, the Navy's third nuclear submarine. In 1958, Calvert took the *Skate* on a wide exploration of the Arctic Ocean under the ice, reaching the North Pole in August of that year. Upon returning to base the *Skate* was refitted for winter-time operations in the Arctic and in March 1959 became the first ship of any kind to break through the ice and surface at the North Pole. He recounted these arctic voyages in *Surface at the Pole* (McGraw-Hill, 1960), still in print after 40 years, now published by the Naval Institute Press, Annapolis.

James Francis Calvert was born September 8, 1920 in Cleveland, Ohio and attended Oberlin College for two years before receiving his appointment to the US Naval Academy in Annapolis. He graduated in three years in 1942 and was immediately sent to the Submarine School at New London and from there to the *Jack*, then being built in Groton, CT. He served on the *Jack* until August, 1945 and was awarded two Silver Stars, two Bronze Stars and a Presidential Unit Citation.

In 1965 Calvert was selected Rear Admiral, the

second youngest officer so chosen in the Navy's history. In 1968 he was appointed Superintendent of the US Naval Academy at Annapolis. During his four-year tenure he changed the curriculum from its traditional lockstep (single major) structure to one that offered over 20 different majors. Calvert was particularly proud of broadening and deepening the Academy's curriculum and bringing talented civilian professors to teach a wide array of subjects.

After leaving the US Naval Academy, he became Commander of the First Fleet in the Pacific. In January 1973, he left the Navy and entered the business world. He served for ten years as Vice President in Charge of Operations at Combustion Engineering, Stamford, CT. He also served on numerous corporate and not-for-profit boards of directors. In 1998, Calvert was awarded an honorary life membership in the American Polar Society for his under-ice exploits in the Arctic Sea.

Vice Admiral Jim Calvert is survived by his beloved wife Peggy, two sons, four step-sons and 15 grandchildren. □

Edith "Jackie" Ronne

Edith "Jackie" Ronne, who, with the wife of the expedition's chief pilot, was one of the first two women to overwinter in Antarctica, during the Ronne Antarctic Research Expedition (RARE) of 1946-48, died in Bethesda, Maryland on 14 June 2009. She was 89.

Jackie was a pioneer in Antarctic history and known as "Antarctica's First Lady," also the title of her 2004 book (see *The Polar Times*, January 2005, p4). At the last minute, she went along with her husband (my father), Capt. Finn Ronne, on his private expedition as the expedition's recorder/historian. She became the first American woman to set foot in Antarctica, and she and the wife of the expedition's chief pilot became the first women to overwinter in Antarctica. They spent 15 months together with 21 other members of the expedition in a small station they set up on Stonington Island in Marguerite Bay.

She is the namesake of the Ronne Ice Shelf (second largest on Earth) which was previously called Edith Ronne Land. Finn, who discovered and mapped that previously unknown territory during the RARE, named it in her honor.

Jackie returned several times to Antarctica, including on a Navy-sponsored flight to the South Pole in 1971 and a trip back to her former base at Stonington Island in 1995 as guest lecturer on the expedition cruise ship *Explorer*. She continued lecturing on cruises for a number of years and made a total of 15 trips to the Antarctic. She also made a trip to Spitzbergen with her husband Finn, daughter Karen, and nephew Jahn.

Jackie was a member of the Board of Governors of the American Polar Society, a fellow of The Explorers Club, a past president of the Society of Woman Geographers and an honorary board member of the Antarctic Society. She was also active in other organizations including the National Society of Arts and Letters and ARCS. She will be missed by many people, but especially by her family: daughter Karen Tupek, son-in-law Al Tupek, grandson Michael and granddaughter Jaclyn. □ by Karen Tupek

Kevin Walton

Malvern Gazette, 23 April 2009—Decorated Antarctic explorer and former Royal Navy engineer officer Kevin Walton died 13 April 2009. He was 90.

Lieutenant Kevin Walton won what later became

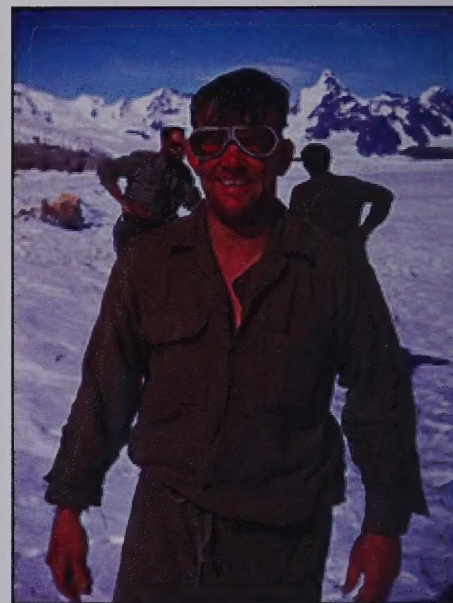
the George Cross for rescuing a fellow member of an Antarctic research expedition from a crevasse in 1946.

Using a tool made from the sawn-off spike of an ice-axe he chipped away until he had freed his colleague sufficiently to fix a rope around his shoulders allowing him to be pulled to safety. The rescue took more than three hours.

Walton received an Albert Medal at Buckingham Palace following the incident. In 1971 when recipients were invited to exchange their medal for a George Cross, he chose to retain the Albert Medal.

The rescue is just one notable achievement in a remarkable life that started in Kobe, Japan, where his father was a missionary.

Walton studied civil engineering at Imperial College London and joined the Navy, where he played a role on



Kevin Walton

the battleship HMS *Rodney* in decisive action against the *Bismarck*. He also helped keep the destroyer HMS *Onslow* afloat in 1942 after she was holed during conflict off the North Cape. He was awarded the Distinguished Service Cross for this action.

After being demobbed, he joined the Antarctic expedition Operation Tabarin, returning home to marry Ruth and going on to have four children and 11 grandchildren.

People attending his memorial service in St James's Church, Colwall on 1 May [were] asked to wear colourful clothes in keeping with Mr. Walton's life. □

Dr. Jerri Nielsen

CNN, 23 June 2009—Nearly a decade after she was rescued from the South Pole in 1999 after diagnosing herself with breast cancer, Dr. Jerri Nielsen died 23 June 2009, her brother said. She was 57.

As a 47-year-old physician stationed at the Amundsen-Scott Station, Nielsen found a lump in her breast in June. She then diagnosed herself with breast cancer and began treating herself using chemotherapy agents parachuted to the station the next month.

Nielsen—an emergency room doctor from Cleveland, Ohio—performed a biopsy on herself

with the help of non-medical crew, who practiced using needles on a raw chicken.

While treating herself, Nielsen carried on her duties as the sole doctor for the 41-person group. She consulted with her doctors in the U.S. by e-mail and teleconference. They recommended that she return as soon as possible for treatment.

Once she returned home and was treated, Nielsen's cancer went into remission, and she wrote about her experience in a best-selling 2001 book, *Icebound*. She married and became a public speaker.

But in 2005, Nielsen's cancer returned in her bones and liver, later spreading to her brain.

"My experience at the pole had to do with accepting things that most people fear most deeply and coming to feel that they need not be feared," Nielsen told *Psychology Today* magazine in 2006. "It certainly had far more to do with peace and surrender than it did with courage. Being 'on the ice' was a great good fortune: It created a much greater clarity for me about what was essential in life." □

Members In Remembrance*

Daniel H. Dennison • Gray W. Hampton, Jr.
Capt. A.L. Raithel, US (Ret) • Edith "Jackie" Ronne
Dr. William Burnham • Capt. William R. Anderson
VADM James F. Calvert

*APS members or others in the polar community who the Membership Center was notified have passed away.

Membership Letter

Greetings from the coast of Maine! As the summer gets going here in northern New England, I want to remind all members that membership rates have gone up for the first time in many years. It is hoped that this change in rates will enable the American Polar Society to remain viable and capable of producing *The Polar Times* at the high quality that members have come to expect.

In October, I will be sending out renewal reminders to members whose memberships will end on December 31, 2009. There will no longer be any discounted extended rates, but you can still renew for multiple years if you would like. New rates are as follows:

- \$25 US Membership per year
- \$35 Foreign Membership per year
- \$25 for Libraries, Institutions, etc
- \$400 Life Membership (US or Foreign)

Anyone interested in joining the American Polar Society should contact Membership Chair Charles Lagerbom at the address or email given at right.

Once again, please contact the Membership Center if you have any questions or if your address information has changed. Such action saves us on postage costs, so we appreciate those who take the time to update us with their contact information. We are still running the "Each One Gets One" campaign to encourage existing members to bring in one other individual to the society. So if you know of someone who might be interested, contact us at the Membership Center, and we will send them some APS information and a current copy of *The Polar Times*. Thank you for your help in this endeavor. It is through the actions of existing members that allow this society to face its challenges and grow stronger at this time. As always, it is a pleasure to serve as your Membership Chair. Please contact me if you have any questions or comments. I very much enjoy hearing from the many members who help make the American Polar Society a great organization!

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About Our Back Cover

The entire traverse train of the Norwegian-American Scientific Traverse, which slowly crossed a wide stretch of East Antarctica over three months this past summer, poses in front of peaks near Norway's Troll Station. The tallest peak to the right is descriptively named Stubbin or 'The Chopping Block.' □ Photo provided by Ted Scambos, NSIDC/University of Colorado

Polar Bear Stamp



On April 16, 2009, in New York, New York (Mega Stamp Show), the Postal Service™ issued a 28-cent, Polar Bear definitive stamp, designed by Carl T. Herrman, Carlsbad, California. Three hundred fifty million stamps have been printed. This stamp [is] ideal for using on post cards [since] the May 11 price increase.

The stamp features a polar bear by illustrator Nancy Stahl, who has created several designs for the Postal Service including the Florida Panther in 2007 and the Dragonfly in 2008. This stamp shows the bear's head, chest, and front paws, and in the background is a dark blue sky dotted with stars. Stahl used a collection of photographs to create this highly stylized illustration. □

Contents

President's Letter	2
APS Celebrates 75th Anniversary	3
Dear Society Member: Thank You	3
Belgium Returns to Antarctica	4
Bacteria Thrive Behind Blood Falls	6
Due South	7
Antarctic Notes	8
Longest APS Membership	10
Much of Antarctic Is Warming More Than Previously Thought	10
Antarctica Tour Operators Hold Annual Meeting	11
New Antarctic Fish Discovered	11
Art from the Ends of the Earth	12-13
Why Did Explorer Sink?	14
Rare White Ellie Seal Photographed	14
Antarctica Calling	15
Freeze Frame	15
South Pole Library Always Growing	15
Norwegian-American Scientific Traverse Completed	16
Centerfold	18
A New Life in Alaska	20
Nunatsinniinnikuuit?	22
Sled Dogs Could Hold Key to Illnesses	24
Geographical Dinner Honors Adm. Robert Peary	24
Species Act Won't Be Used to Force Lower Emissions	25
Stronger Hulls Could Help Fill Icebreaker Gap	25
That's Some Letter Opener You've Got There!	26
Due North	28
Book Reviews	30
On the Web	33
Obituaries	34
Membership Letter	35
Polar Bear Stamp	35
General APS Information	35

